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The Effects of Patient Education on the Recidivism Rate and Length of Stay of Clients with Schizophrenia

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To the Graduate Council:

I am submitting herewith a dissertation written by Mary Charlynne Parson entitled "The Effects of Patient Education on the Recidivism Rate and Length of Stay of Clients with Schizophrenia." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Educational Administration.

Gary Ubben, Major Professor

We have read this dissertation and recommend its acceptance:

Ernest Brewer, Lloyd Davis, Lynn Ourth

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(Original signatures are on file with official student records.)

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THE EFFECTS OF PATIENT EDUCATION ON THE RECIDIVISM RATE AND LENGTH OF STAY OF CLIENTS WITH SCHIZOPHRENIA

A Dissertation

Presented for the

Doctor of Education

Degree

The University of Tennessee, Knoxville

Mary Charlynne Parson

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We are all happy it is over!

Abstract

Schizophrenia is a complicated, serious mental illness that affects about 1% of the population. In addition to the behavioral issues they must contend with, the patients often have other problems including medical illness, substance abuse, noncompliance with treatment and medications, and those involving basic skills. The cost of treating this disabled population is very high, but patient education could be a cost-effective intervention to break the “revolving door” phenomenon of recidivism and rehospitalization. This study examined the readmission rate (recidivism), length of stay, and the intervals between admissions for 279 male and 183 female patients with chronic schizophrenia who either did or did not participate in psychosocial education over a nine (9) year period to determine whether there was a difference between the groups. The findings showed that both the number of patients and return rate (recidivism) for the years following the initial intervention was considerably lower for patients who had the educational intervention and the patients who had the educational intervention had longer intervals between admissions. However, due to uncontrolled-for confounding variables, the average LOS for the intervention group for 4 of the 8 years was greater than the control group.

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Chapter 1

Introduction

Noncompliance with the prescribed treatment regimen is a major factor in readmission of patients to psychiatric hospitals. According to Surber, Winkler, Monteleone, Havassy, Goldfinger, and Hopkins (1987), the diagnoses most likely to produce recurrent psychotic episodes are schizophrenia, bipolar affective disorder, borderline personality disorders, and often substance abuse, although it is underreported. Indeed, Kosten and Douglas (1997) note that up to 50% of individuals with schizophrenia have either alcohol or illicit drug dependence and about 70% more are also nicotine dependent. Substance abuse among psychiatric patients, especially those with schizophrenia, worsens prognosis, increases the likelihood of noncompliance and institutionalization, chemical dependence, violent behavior, and suicide (Conley, 2000; Oster, Berbaum, & Patton, 2001; Ziedonis & Williams, 2002).

Additionally, psychiatric patients often present with an array of other problems, including behavioral and medical issues along with those involving basic living skills such as managing money and maintaining housing. It has been noted that as they age, patients with schizophrenia have greater risk than the general population of developing other illnesses such as type 2 diabetes (Goldman, 1999; Vieweg, Adler, & Fernandez, 2002). There is no doubt that mental illness complicates things for patients who are already having difficulty in communicating with caregivers due to their psychiatric symptoms. In some cases, the effects of psychotrophic drugs or substance abuse may complicate their

medical illness. Then, in others, the medical conditions may simply be overlooked because patients with schizophrenia have a high pain threshold and just don't complain (Dixon, 2003; Dworkin, 1994; Goldman, 1999). Nevertheless, the cost of treating this disabled population is very high (Surber et al. 1987).

Platt, Tippy, and Turk (1994) report that poor compliance or nonadherence to treatment recommendations plague every aspect of medical practice. They note that only one-third of patients follow medical treatment and life style recommendations completely and correctly, and another third attempt to follow instructions, but do so incorrectly and the remainder completely fail to follow them. When Docherty (2003) compared medication compliance in a group of patients with physical disorders and those with psychiatric disorders (76% and 58% respectively), he found that the mean compliance rate for the two groups to be less than 20% apart. Likewise, in a study of 113 multiple psychiatric admission patients, Carpenter, Mulligan, Bader, and Meinger (1985) found that noncompliance with medication was noted in 70% of the study group compared with only 38% of the comparison group who did not have multiple admissions. Sadly, the comprehensive review of recent literature that Lacro, Dunn, Dolder, Leckband, and Jeste researched in 2002, found that the nonadherence mean rate among patients with schizophrenia was still only close to 50%.

In a review of the prevalence and risk factors for medication nonadherence in patients with schizophrenia, Lacro et al. (2002) identified the following factors associated with nonadherence: poor insight, negative attitude or subjective response toward medication, previous nonadherence, substance abuse, shorter

illness duration, inadequate discharge planning or aftercare environment, and poor therapeutic alliance. To these factors, Hudson et al., (2004) added patient reported barriers related to the stigma of taking medications, adverse drug reaction, forgetfulness, and lack of social support. Although, Docherty (2003) notes that partial compliance can't be measured, it does affect the majority of patients and its impact includes decreased functionality, clinical worsening that is difficult to reverse, and relapse.

Daumit, Crum, Guallar and Ford (2002) noted in their study of preventative care for patients with severe mental illness that there was a long-standing separation of treatment for medical problems and mental illness. Even when primary care referrals are made, they are often given low priority by the patient because of more pressing concerns or lack of understanding of the benefits. Additionally, Montoya (2006) found that poor treatment compliance is often associated with blame for the patient and they may be involuntarily discharged from treatment.

Appleby, Desai, Luchins, Gibbons, and Hedeker (1993) reported that psychiatric bed reductions in mental hospitals, particularly in public hospitals, have decreased 80% since 1955. This reduction in beds has been achieved by shortening the length of stay by better than half what was reported ten years earlier. Appleby et al. (1993) in their study of 1,500 patients with schizophrenia who were tracked over and 18 month period, found that there was a linear relation between length of stay and relapse rates. They showed that patients hospitalized for short stays were more likely to return within 30 days of discharge and require

treatment for longer periods. Although brief stays may be consistent with the philosophy of deinstitutionalization, Appleby et al. (1993) feel that the evidence to support this practice is not beneficial to all patient groups. In fact, the advent of deinstitutionalization probably set the table for the mentally ill to not only swell the ranks of the nation's homeless population (Miller, 2003); but to also move into the criminal justice system (Lamb & Weinberger, 1998).

Rehospitalization rates tend to increase as a function of alcohol problems and medication noncompliance (Dhossche & Ghani, 1998; Haywood, Kravitz, Grossman, Cavanough, Davis, & Lewis, 1995). In their 2004, retrospective study of 4,325 California outpatients with schizophrenia being treated with antipsychotic medication, Weiden, Kozma, Grogg, and Locklear found that lower medication compliance was the most statistically significant risk factor associated with a higher risk of hospitalization. Given this strong association, Haywood, et al. (1995) emphasized the importance of patient education as a cost-effective intervention to break the cycle of what they called the "revolving door" phenomenon among the mentally ill. In 1997, Dixon, Weiden, Torres, and Lehman noted that the annual economic impact of schizophrenia noncompliance rehospitalization was around $800 million; however, by 2003, these costs had risen to between $33 to $65 billion (Cooper, Hanrahan, & Luchins, 2003; Marder, 2002). Perkins (2005) notes that 37% of this annual cost is related to treatment nonadherence. Indeed, in today's environment of less inpatient capacity, managed care and limits on reimbursement for hospital care, treatment must

emphasize concrete problem solving, education, and medication stabilization and compliance in order to be cost effective (Scheider & Ross, 2003).

Platt et al. (1994) reviewed issues in patient nonadherence to treatment and lifestyle recommendations and found that patients usually benefit from knowing as much as possible about their illness or condition. They found that educational messages are more effective when provided by several sources and clearer when delivered verbally and reinforced by reading or listening materials. Indeed, Schaffer and Lopes (2003) believe that adherence is a learned behavior and can be improved with specific strategies directed toward improving adherence to the therapeutic regimen, practice by the patient, and reinforcement by healthcare providers. In her review of the impact that noncompliance has on the patient with schizophrenia, Perkins (2005) determined that improved drug delivery and behavioral interventions that reduce relapse and rehospitalization can also improve the patient's quality of life and reduce treatment costs.

In 1993, Birchwood, Mason, MacMillan, and Healy did an indepth study of the perception of controllability of illness in people with schizophrenia and manic-depressive illness. They found that patients who accepted their diagnosis reported that they felt they were able to exert control over their own health and this had an impact on compliance. Similarily, in their review of treatment compliance factors, Schaffer and Lopes, (2003) found that patients who are knowledgable about their disease and the treatments being used to manage it are also more motivated to adhere to the treatment plan. Even in field research involving rigorous controlled clinical research designs, Drake, Becker, and

Anthony (1994) determined that those clients who received information about the objectives of the study beforehand were facilitated in realistic decision making about vocational programs. The clients also reported enhanced satisfaction and there was decreased attrition from the study. Likewise, more recently, Prince (2006) explored services to prevent rehospitalization within 3 months of inpatient discharge and found that providing specific interventions addressing symptom education, service continuity, and daily structure were most effective in assisting patients to stay out of the hospital.

Problem

Review of literature over the past twenty years suggested that a patient who is better informed can be more self-reliant after hospitalization, which would increase compliance and reduce the rate of readmission. We might ask whether patient self-management and improved compliance are products of group participation in patient education activities. If they are, then, will these group patient education activities make any difference in either the recidivism rate or length stay if the client does return to the hospital?

Purpose

The purpose of this study was to determine the effect that participation in patient psychosocial education activities while hospitalized has on readmission rates among patients with chronic schizophrenia.

Research Questions

The specific research questions that guided the study were:

1. Do patients with chronic schizophrenia who receive psychosocial education have lower relapse rates (recidivism) than those who do not receive psychosocial education?
2. Is there a difference between the length of stay for readmitted patients with chronic schizophrenia who have participated in the psychosocial education and those who have not?
3. Is there a difference in the length of intervals between admissions for the group who had psychosocial education and the group who did not?

Significance

Of the research on the effects of patient education, few specifically target the patient with schizophrenia for study. Schizophrenia is a serious mental health problem. It affects roughly 1% of the population and has profound implications for our society, both in terms of human suffering and in prolonged, devastating financial costs (Horgan, 1990). In addition to hallucinations and delusions, the disease produces disorganization in thinking, depression, and diminished ability to function. In the United States, patients with this debilitating illness account for 40% of all long-stay hospital days and they occupy 25%, of the beds available for all inpatient care (Kleyman & Rozenfeld, 2001). Costs linked to schizophrenia in this country account for 2.5% of our total healthcare expenditures (Perkins, 2005). This study compared the recidivism rate of patients with chronic schizophrenia who did and did not participate in psychosocial educational activities to see if

patient education made a difference in either the readmission rates interval between admissions, or length of stay for this diagnostic group.

Most studies dealing with recidivism rates for mentally ill patients focus on either describing the type of patient likely to require readmission or the risk factors associated with the need for hospitalization. However, this study examined the impact of patient education for the client with chronic schizophrenia to determine whether there was a lower relapse rate between those who participated in the classes and those who did not.

The findings in this study will be important because they will (1) provide information abut patient compliance that might be helpful in reducing recidivism rates, and (2) examine the value of psychosocial education in shortening the hospital stay for patients if readmitted.

Delimitations

The participants include only patients with the diagnosis of schizophrenia admitted to a medium sized state psychiatric hospital during the period of July 1,1997, to June 30, 2006, who either participated in patient psychosocial educational groups designed to increase compliance with treatment after hospitalization or did not participate in such groups. Operational definitions for the following terms used in the study include:

Schizophrenia - a medical diagnosis characterized by two (or more) of the following, each present for a significant portion of time during a 1 month period (or less if successfully treated): Delusions, hallucinations, disorganized speech (e.g., frequent derailment or incoherence), grossly disorganized or catatonic

behavior, and negative symptoms, i.e., affective flattening, alogia, or avolition. thinking, depression , and diminished ability to function. There are subtypes of schizophrenia that are defined by the predominant symptomatology (paranoid, disorganized, catatonic, undifferentiated and residual) at the time of evaluation (Diagnostic and Statistical Manual 4th Edition [DSM-IV], 2000).

Paranoid Type (295.30) - a type of schizophrenia presenting with a preoccupation with one or more delusions or frequent auditory hallucinations. However, none of the following is prominent: disorganized speech or catatonic behavior, or flat or inappropriate affect (DSM-IV, 2000).

Disorganized Type (295.10) - a type of schizophrenia in which disorganized speech, disorganized behavior, and flat or inappropriate affect are prominent. The criteria are not met for Catatonic Type (DSM-IV, 2000).

Undifferentiated Type (295.90) - a type of schizophrenia in which symptoms that meet Criterion A (bizarre delusions and controlling hallucinations), are present, but the criteria are not met for the paranoid, disorganized, or catatonic type (DSM-IV, 2000).

Residual Type (295.60) - a type of schizophrenia that presents with the absence of prominent delusions, hallucinations, disorganized speech, and grossly disorganized or catatonic behavior. There is continuing evidence of the disturbance through negative symptoms and two or more of the Criterion A symptoms for schizophrenia that present in the form of odd beliefs or unusual perceptual experiences (DSM-IV, 2000).

Schizoaffective Disorder (295.70) – a type of schizophrenia characterized by an uninterrupted period of illness during which, at some time, there is either a Major Depressive Episode, a Manic Episode, or a Mixed episode concurrent with symptoms that meet criterion A for Schizophrenia: i.e., delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behavior, and negative symptoms (DSM-IV, 2000).

Psychosocial educational groups – formalized inpatient group educational sessions developed at UCLA Clinical Research Center for Schizophrenia and Psychiatric Rehabilitation. The groups, led by topic-specific educators, include four major components – social schemata, social skills, coping efforts, and social competence (Liberman et al. 1986). Educational groups in the study included symptom management, medication management, anger and stress management, and leisure skills. The time for each group was limited to 20 minutes. Attendance was voluntary, but patients were encouraged to participate in the groups by the hospital staff.

Recidivism - the readmission or rehospitalization rate by patients for treatment.

Global Assessment of Functioning (GAF) Scale (Appendix C) – a scale used by the psychiatrist to consider psychological, social, and occupational functioning on a hypothetical continuum on mental health-illness. It ranges from zero to one hundred points and considers dangerousness, impairment in judgment, behavior influenced by delusions or hallucinations, and degrees of social, occupational or school functioning. It is for reporting the clinician's judgment of

the individual's overall level of functioning at the time seen and can vary from day to day (DSM-IV, 2000). During the admission process, the physician assigns the diagnosis and GAF using the DSM-IV. There are 5 axes included in the DSM-IV multi-axial classification, each of which refers to a different domain of information that may help the clinician plan treatment and predict outcome (Diagnostic and Manual of Mental Disorders, 2000). Clinical disorders such as schizophrenia are reported on Axis I while the assessment of functioning is on Axis V. Only two of the axes, diagnosis and GAF, are of concern for this study.

Diagnostic and Statistical Manual 4th Edition (DSM-IV) – a resource manual used by the psychiatrist with established guidelines for making diagnoses. The DSM-IV provides clear descriptions of diagnostic categories of mental disorders to enhance agreement among clinicians.

Limitations

The study involved patients admitted to the state psychiatric hospital with the severe mental illness diagnosis of schizophrenia. It was confined to patients from a public psychiatric setting involved in formalized educational groups and those who were not in educational groups. All patients admitted to the facility met with their multidisciplinary team and agreed with the assignment to various group activities and formal education classes (e.g., symptom management, medication management, leisure skills, anger and stress management, and others). The most serious limitation was the lack of control over variables that were beyond the control of the researcher. Although comparative studies identify relationships, causation cannot be fully established since the data were retrospective and there

could be other uncontrolled variables that produced both the cause and the effect. Thus, generalizability of these findings must be approached with caution (Fraenkel & Wallen, 1996).

Organization of the Study

This study was organized into five chapters. Chapter 1 contains background for the problem, purpose of the study, definition of terms, research questions, the significance of the study, limitations and delimitations, and assumptions. Chapter 2 includes a review of related literature, including the impact of Schizophrenia, the value of psychosocial education, and current research related to psychosocial education for persons with the diagnosis of Schizophrenia. Chapter 3 describes the methodology used in the study, including identification of the subjects, procedures for random selection, and procedures for conducting the study and interpreting the data. Chapter 4 includes the findings and interpretation of the data. Chapter 5 concludes with a summation of the findings and a discussion of the conclusions and implications for further research.

Chapter Two

Review of the Literature

Purpose of the Study

The purpose of this study was to examine the relationship between readmission rates and participation in psychosocial education for patients with schizophrenia. The research approach was retrospective descriptive. The review was organized as follows: The impact of schizophrenia, the value of psychosocial education, and current research related to psychosocial education for persons with the diagnosis of schizophrenia.

The Impact of Schizophrenia

Schizophrenia is a serious mental health problem. It affects roughly 1% of the population in the United States and costs the nation $30 billion to $40 billion annually (Dixon et al., 2001; Horgan, 1990). Costs linked to schizophrenia in this country account for 2.5% of our total healthcare expenditures (Perkins, 2005). According to Surber et al., (1987), it is among the diagnosis most likely to produce recurrent psychotic episodes.

Schizophrenia most often presents in early adulthood, but it can occur during any phase of life from childhood to old age (Kennedy, Jain, & Vinogradov, 2001). The disease produces disorganization in thinking, depression, and diminished ability to function. It interferes with an individual's ability to think, respond emotionally, behave appropriately, and interpret reality. The debilitating aspects of the illness result in social isolation, inability to maintain gainful

employment, incoherent or delusional thinking, and difficulty in managing life's daily activities.

Citrome (2004) notes that about one third of the patients with schizophrenia do not respond to typical antipsychotic agents and many more such patients can be expected to have only a partial response. In the United States, patients with Schizophrenia occupy 25% of the beds available for all inpatient care and account for 40% of all long-stay hospital days (Citrome, 2004; Kleyman & Rozenfeld, 2001). Indeed, the impact that this disease has on individuals, families, and society is substantial.

Diagnostic Criteria

Pearlson (2000) notes that the clinical diagnosis of schizophrenia is determined by ruling out the possibility of other psychiatric and neurological disorders since it is based on behavioral observations and self-reported abnormal mental experiences for a period over at least six months (Kennedy et al., 2001). A chronic disorder, schizophrenia has periods of stability alternating with periods in which psychotic symptoms are prominent (van Meijel, Kruitwagen, van der Gaag, Kahn, & Grypdonck, 2006); but the actual etiology and pathogenesis of the disease is unknown. In fact, in their carefully controlled research study, Buckley and Buchanan (1999) were able to show a genetic linkage for schizophrenia on chromosomes 5, 6, 8, 13, and 22; however, they were unable to demonstrate evidence of a major genetic defect as the cause of schizophrenia. In family and twin studies, Craddock, O'Donovan, and Owen (2006) found that these same chromosomes show overlapping regions of interest in both schizophrenia and

bipolar disorder rather than purely for schizophrenia as was commonly held for over 100 years. Nevertheless, there are biochemical abnormalities and possibly neurodevelopmental issues; but regardless of the pathophysiology, current research asserts that it is most likely the interaction of both genetic and environmental factors that define the clinical presentation of the disorder (Dean, Keriakous, Thomas, & Scarr, 2005; Pearlson, 2000).

The symptoms of schizophrenia are conventionally divided into "positive" and "negative" types. The positive symptoms are presumed to result from an excess or distortion of some normal neurophysiologic function, while the negative symptoms reflect a loss or diminution of normal function (Nasrallah & Smeltzer, 2002). The positive symptoms of schizophrenia include hallucinations, delusions, thought disorders, disorganized speech, and bizarre behavior. Individuals also may experience co-morbid illnesses, such as depression or anxiety that may further compromise their levels of functioning. The negative symptoms include emotional flattening and social apathy; impaired judgment, problem solving ability, and abstract reasoning; poor initiative, motivation, and drive; lack of insight, difficulty in planning, and decreased concern for personal hygiene (Nasrallah & Smeltzer, 2002; Perkins, 2005). However, there are unexplained gender differences on both the risk and clinical expression of the disorder.

Women are more likely to experience more positive and affective symptoms, but have better treatment response while men have more negative symptoms, earlier onset, and a worse long-term outcome (Goldstein, 1997).The peak age of onset for males is between 15 and 25 years. Interestingly, onset in

women is delayed by approximately 3 to 5 years, possibly related to the protective role of estrogen (Nasrallah & Smeltzer, 2002; Seeman & Lang, 1990). However, after the age of 45 years, new cases in women surpass men by a ratio of 2:1 (Nasrallah & Smeltzer, 2002; Seeman, 1996); but ultimately has the same male/female prevalence. Since schizophrenia shares a familial predisposition with several clinical syndromes, including schizoaffective disorder, schizotypal personality disorder, and probably psychotic affective illness, it suggests a genetic overlap between certain forms of affective illness and schizophrenia (Pearlson, 2000).

A small percentage of patients with schizophrenia have a single episode of acute illness with no residual impairment. However, while 30% of patients have a good outcome with minimal or no residual impairment, another 30% have moderate, but stable impairment due to deficit symptoms that do not progress. The remaining 30% have persisting, progressive cognitive deficit symptoms that cause increasing impairment without return to baseline (Leff, Dayson, Gooch, Thornicroft, & Wills, 1996). Pearlson (2000) asserts that these patients with severe and persistent impairment who do not return to baseline are the patients who in the past were most likely to have remained in chronic state hospital facilities, but with the advent of deinstitutionalization, were more likely to become homeless or jailed.

Mohamed, Paulsen, O'Leary, Arndt, and Andreasen, (1999) in their study of 73 never-treated patients concluded that the cognitive disturbance in schizophrenia is such a complex and diverse phenomenon that the older models

used to understand the problem fall short in describing it. The disruption in the fundamental circuitry in the brain leads to impairment in all cognitive systems and subsystems, including memory, attention, language, and executive functions. Indeed, neurocognitive deficits are a key symptom domain in schizophrenia and are the more significant predictors of functional outcome (Glaser, 2002).

Although most researchers recognize the incapacitating nature of cognitive deficits, the debate continues to be about the relationship between the onset of dysfunction to the onset of illness. Schizophrenia has its cycles. Herz (1991) describes them as periods of remission alternating with periods of increasing illness. These periods of illness culminate in relapse - the reoccurrence of a psychotic illness. Most patients will suffer a relapse within two years of an acute episode. These disruptions to social and vocational lives from relapse can cause lasting damage. Therefore, it is important for patients and their families to recognize the early signs of relapse to prevent a full relapse from occurring.

Recidivism

It has been widely reported that there is a significant predictive relationship between the single variable of previous hospitalization and frequent rehospitalization (Goodpastor & Hare, 1991). Swett (1995) looked at consecutive patients (n = 189) entering an acute admissions unit and found that previous psychiatric readmission was a factor, but added the variable of higher acuity on discharge. He noted that these variables might also indicate incomplete inpatient treatment during an earlier stay or poor follow-up after discharge. Additionally, Haywood et al., (1995) reported that the readmission rates for psychiatric patients

are increased as a function of drugs and alcohol problems and medication noncompliance.

A seven year study by Marom, Munitz, Jones, Weizman, and Hermesh (2005) of 93 patients with schizophrenia and 15 with schizoaffective disorder looked at expressed emotion (EE) as another predictor of long-term outcome for these patients. Using a Five Minute Speech Sample (FMSS), the key relatives of the patients were categorized as either high or low on EE, and its two components, criticism (CR) and emotional overinvolvement (EOI). The EOI component was found to be insignificant while high CR compared to low CR was associated with higher rates of readmission and longer hospital stay. Moreover, they concluded that EE could be of value as a predictor of the clinical course of schizophrenia and should be pursued for long-term prevention interventions.

Although contrary to the study that Appleby et al. performed in 1993, Swett (1995) did not find a shorter length of stay to be a significant predictor for more frequent or early readmission. However, Goodpastor and Hare (1991) in their retrospective review of hospital records of 207 patients with 547 readmissions, found that age and sex were stronger predictors of length of stay than even the diagnosis while noncompliance with medication (Docherty, 2003; Haywood et al. 1995; Love, 2005) and therapy appointment were the only significant predictors of rapid relapse. Similarly, the educational modules developed by Liberman had no significant effect on the number of readmissions, but did have an effect on their duration (Stenberg, Jaaskelainen, & Royks, 1998).

Prince (2006) looked at rehospitalization rates during the first three months after hospital discharge for 264 patients with schizophrenia. He found that services addressing symptom education, care continuity, and daily structure were more effective than other interventions in preventing rehospitalization. Likewise, Nelson, Maruish, and Azler (2000) found that in patients who kept their outpatient appointments, the readmission rate stayed the same over time, whereas, the patients who did not had significantly higher rates. Interestingly, it was also noted that patients who had no outpatient appointment after discharge were two times more likely to be rehospitalized in the same year than the patients who kept at least one outpatient appointment. Relapse rates can also be effectively impacted by family-based intervention programs (Pollio, North, Reid, Miletic, & McClendon, 2006; Razali & Yahya (1995).

Treatment Issues

As they age, patients with schizophrenia have greater risk than the general population of developing other illnesses such as type 2 diabetes, cardiovascular abnormalities, hypertension, or other disorders (Davidson, 2002; Goldman, 1999; Vieweg et al. 2002), including dementia, although there is no increased risk for Alzheimer's disease (Citrome, 1998). In addition, many of the newer atypical antipsychotic medications may also elevate blood sugar levels and cause excessive weight gain (Vieweg et al. 2002). Other unhealthy behaviors that put them at risk include abuse of nicotine, alcohol, and other substances. It is believed that patients with schizophrenia are self-medicating with these substances. In fact,

research done by Conley (2000) has suggested that there is a link to improved mood and reduction of psychotic symptoms with nicotine use.

Goldman (1999) believes that mental illness complicates things since these patients may not volunteer medical complaints or may have difficulty in communicating their problem to the physician. Indeed, in the retrospective study of some 370 psychiatric admissions with the diagnosis of schizophrenia, Brown, Barraclough, and Inskip (2000) found that of the 79 patients, who had died, three were due to the failure of either the patient or the physician to recognize a disease. In some cases, the effects of psychotrophic drugs or substance abuse may also complicate the patient's medical illness. Then, in other cases, the medical conditions may be overlooked because patients with schizophrenia have a high pain threshold (Dixon, 2003; Dworkin, 1994; Goldman, 1999) and simply don't complain.

Added to the other risks associated with obtaining medical care for the patient with schizophrenia is the long-standing separation of treatment for medical and mental illnesses. Daumit et al. (2002) found in their study of preventative care for patients with severe mental illness that psychiatrists provided services for medical illnesses only 11 percent of the time. The physicians cited lack of training as a major barrier to their delivery of these services. However, it has been shown that when referrals to primary care are made, they are often given low priority by the patient because of more pressing concerns or lack of understanding of the benefits.

In a study by Brown et al. (2000), it was found that poor compliance with treatment definitely caused at least one death and may have been responsible for some of the other 58 deaths from diabetes, epilepsy, stroke, and respiratory diseases. Poor compliance with treatment is also associated with blame for the patient and they may be involuntarily discharged from treatment (Montoya, 2006). At any rate, victims of both their illness and a fragmented healthcare system, patients with schizophrenia are less likely than those in the general population to receive adequate healthcare (Crews, Batal, Elasy, Casper, & Mehler, 1998; Dixon, 2003; Dixon et al. 2001; Goldman, 1999).

Comorbidity

Kosten and Douglas (1997) note that up to 50 percent of individuals with schizophrenia have either alcohol or illicit drug dependence and about 70 percent or more are nicotine dependent. In a recent report by the Substance Abuse and Mental Health Services Administration, drug and alcohol use were found to be the major reason for more than 1 million emergency department visits annually (Ziedonis & Williams, 2002). Additionally, Swartz et al. (1998) found that noncompliance and substance abuse may be mutually reinforcing problems in that substance impairment may impede medication adherence while noncompliance, in turn may lead to self-medicating with alcohol or illicit drugs.

A self-medication hypothesis has suggested that the use of these drugs may acutely ameliorate some negative and positive symptoms of schizophrenia, but the chronic effect of these abused drugs is detrimental to the psychological wellbeing of these patients. These detrimental effects may either be the

consequence of not taking prescribed antipsychotic medication or result in actually precipitating psychotic symptoms (Kosten & Douglas, 1997). Haywood et al. (1995) found that rehospitalization rates increased also as a function of alcohol and drug problems and medication compliance. Clearly, substance abuse among psychiatric patients, especially those with schizophrenia, worsens prognosis, and increases both the likelihood of institutionalization and risk of dependence on the chemical substance (Ziedonis & Williams, 2002).

Most patients with schizophrenia will express symptoms of depression at some point during their illness. The reason may be related to many different factors in any given domain - physical, psychological, social, or spiritual. Nasrallah and Tandon, (2002) report that depressive symptoms are present in up to 60 percent of patients with schizophrenia. The depression complicates the clinical picture of schizophrenia by interplaying with all other core symptom domains that include positive symptoms, negative symptoms, and cognition. It affects compliance, social and vocational functioning, reintegration, and risk for suicide in this already vulnerable population (Petty, 2001).

Depressive symptoms affect the overall quality of the patient's life and may contribute to the high lifetime rate of completed suicide and suicide attempts. In fact, the major warning signs for suicidality in this population include depression (Siris, 2001), feeling that their illness is beyond their control, and a sense of hopelessness (Meltzer, Davidson, Glassman, & Vieweg, 2003; Rossau & Mortensen, 1997). Indeed, Gupta, Black, Arndt, Hubbard, and Andreasen (1998) from their comparative study of male patients (n = 336) with schizophrenia who

had a lifetime history of a suicide attempt found that depressive episodes and an earlier age of onset were more predictive of suicidal behavior than drug or alcohol abuse.

Suicide

Aggression towards the self is one of the most serious of schizophrenia behaviors (Glazer, 2002) and is reportedly the leading cause of premature death among these patients. As the eighth leading cause of death among all age groups, Noffinger and Knoll (2003) calculated that at least 30,000 persons in the United States commit suicide each year. It is estimated that 10% of people with the diagnosis of schizophrenia will have a completed suicide (Gupta et al. 1998; Roy, 1982); but attempts are made at two to five times that rate (Miller, 2003; Rossau & Mortensen, 1997;). In fact, Simon and Gutheil (2002) note that males of all ages, including those with schizophrenia, have a higher incidence of suicide than females. Destructive acts against the self include suicide and parasuicide or self-injurious behavior. However, Singer (1986) believes that attempted suicide and parasuicide are more often attempts to control others rather than true self-destructive intent; but notes that both must be taken seriously since even the manipulating patient may accidentally succeed.

In addition to the presence of depression and psychosis, poor functioning is one of the greatest risk factors for suicide in schizophrenia. Some other key factors include inadequate medication, noncompliance, treatment resistance, communicated intent, substance abuse (Conley, 2000), and intimate partner violence (Heru, Stuart, Rainey, Eyre, & Recupero, 2006). Recent original research

conducted in Canada (Kontaxakis et al. 2004) with a small sample of patients with schizophrenia (n = 93), added several social factors such as young age, male sex, single, unemployed, previous suicide, and multiple relapses to the list of risks. Moreover, Brown et al. (2000) and Noffsinger and Knoll (2003), contrary to the findings by Gupta et al. (1998), believe that when serious drug or alcohol abuse is factored in, the risk is increased and the true death rate among those with schizophrenia is even higher than their research suggests.

Suicide risk factors may vary in different treatment phases among patients with schizophrenia (Heila et al. 1999). For example, young patients early in the course of schizophrenia are more likely to commit suicide than are older patients. Among inpatients, those with a negative attitude toward treatment had the highest proportion of suicide while recently discharged patients had the highest prevalence of comorbid alcoholism, paranoid subtype, recent suicidiality, and short last hospitalization (Heila et al. 1999; Rossau & Mortensen, 1997). In their 2006, study of 110 psychiatric patients, Heru et al., found that there was also high prevalence of intimate partner violence (IPV) in these inpatients. Unhealthy family functioning and alcohol abuse in males were factors. Although the relationship between IPV and sucidiality is not direct, the prevalence for both genders is greater than 90%. Additionally, from their anecdotal report on more than 100 suicide cases Simon and Gutheil (2002) added that isolation on the inpatient unit, withdrawal and detachment from relationships, and failure to form a true therapeutic alliance with the psychiatrist and staff significantly increased the suicidal risk factor.

The risk for suicide was found to be higher during the first 6 months of discharge (Rossau & Mortensen, 1997); but with patients with schizophrenia, 30% occurred within the first month after discharge and the next highest was during the first week of admission. These findings suggest that the change from longer, less frequent stays in the hospital to shorter, more frequent readmissions may have a significant negative impact on the suicide risk (Palmer, Pankratz, & Bostwick, 2005). Patients are particularly vulnerable during these transitional periods and there is need for increased preventative measures during this time (Palmer et al. 2005). Clearly, as Conley (2000) has noted, suicide is a frequent and serious outcome of schizophrenia.

Violence and Incarceration

Similar to the suicidal risk factors for this population, being male or having a history of substance abuse is also correlated with violent behavior (Nolan, Citrome, & Volavka, 1999; Oster et al. 2001). However, men are only slightly more likely than women to use physical aggression in violent incidents (Oster et al. 2001). In fact, when Oster et al. (2001) reviewed 99 violent or potentially violent patients, they found that psychotic disorder, history of previous violence, and a low GAF score (< 26) were also predictors. Indeed, they believe that these factors were more clinically important predictors than even substance abuse.

In 1998, Swartz et al. enrolled 331 involuntarily admitted inpatients in a longitudinal with study to look at violence among persons with severe mental illness. Those selected as subjects predominately had diagnoses of schizophrenia,

schizoaffective disorder, or other psychotic disorders. The racial distribution was about two-thirds African American and one-third Caucasian which is quite representative of the severely mentally ill population in urban public hospitals. Although they found that African Americans were no more likely than Caucasians to commit violent acts, the study did confirm that substance abuse, medication noncompliance, and low insight into illness operate together to increase violence risk.

Although violent behavior occurs infrequently among patients with schizophrenia, Nolan et al. (1999) believes that most patients with schizophrenia are not violent. They note that violent events are related to the severity of the patient's psychosis or psychotic symptoms, particularly auditory command hallucinations and are a principal reason for both psychiatric hospitalization (Nolan et al. 1999) and incarceration (Lamb & Weinberger, 1998). There is evidence that there is increased aggressive behavior associated with schizophrenia relative to the general population, but consumer and advocacy groups feel that portraying the person with schizophrenia as dangerous is unnecessarily stigmatizing. Thus, experts in the field resolve the conflicting perspectives by pointing out that it is the untreated as opposed to the properly treated patient with schizophrenia who is at greater risk for violence (Pomerantz, 2003). This also relieves the patient from responsibility for their behavior.

Aggression or destructive behavior may be directed to objects or people (Singer, 1986) and may further erode supportive social and therapeutic relationships (Swartz et al. 1998). Unfortunately, society has limited tolerance for

deviant behavior and the violent patient often enters the criminal justice system. The term criminalization has been applied to the arrest and prosecution of persons with mental disorders rather than placing them in the mental health system (Lamb & Weinberger, 1998). Miller (2003) offers several factors that led the movement of patients from hospital to jail. Foremost was deinstitutionalization which was an objective series of events that led to a massive shift in the locus of care for chronic mental patients (Bachrach, 1992).

The series of events began with the introduction of more effective drugs to treat serious mental illnesses during the mid-1950s, which started the bed reductions in state facilities. In 1965, Medicaid came on the scene and states found that they were able to shift their financial burden to the federal government. However, the federal government added a provision to the Medicaid law that excluded payment of services for patients in state psychiatric hospitals or other such "institutions for mental diseases" which came to be called the IMD exclusion. Finally, this exclusion not only led to the obligatory reduction of psychiatric beds in state hospitals; but to the fact that, in general, there were insufficient resources available to the severely and persistently mentally ill (Hurd, 2001).

The advent of deinstitutionalization probably did set the table for mentally ill persons to move to the criminal justice system. In about 40 years, the United States reduced the number of occupied state hospital beds from 339 per 100,000 population to 29 per 100,000 on any given day (Lamb & Weinberger, 1998). Appleby et al. (1993) had clearly demonstrated in their 18-month study of 1,500

patients with schizophrenia that there was a linear relationship between length of stay and relapse rates. So when hospital beds became less available, these patients were most likely among those caught in the "revolving door" of frequent hospital readmission for psychiatric care. However, now they were caught in the "revolving cell door" bouncing between state hospitals and jails (Lamb & Weinberger, 1998).

A review of the literature from clinical studies from 1970 through 1998, that suggested that 10-15% of persons in state prisons have severe mental illness. This also supports the contention that the mentally ill are being increasingly processed through the criminal justice system (Lamb & Weinberger). Pomerantz (2003) reports that the prison census conducted by the U. S. Department of Justice in 2000, determined that nearly 13% of inmates in state-run institutions received some form of mental health care from a trained professional on a regular basis. However, at mid-year 2005, a special report of the Bureau of Justice found that the numbers of jail inmates reporting mental health problems have swelled to 56% of State prisoners, 45% of Federal prisoners, and 64% of jail inmates (U.S. Department of Justice, 2006).

One can better appreciate the impact of these percentages when the actual numbers are given. A study by Miller (2003) in 1995, noted that there were approximately 70,000 persons with severe mental illness in public psychiatric hospitals and by 1999, the numbers had swelled to about 283,000 persons with severe mental illness being incarcerated in state and federal jails and prisons. These 283,000 persons account for approximately 16% of the prison and jail

inmate population. According to Miller (2003) jails and prisons have become the defacto psychiatric institutions in the United States. Lamb and Weinberger) believe that this is because law enforcement and courts do not want to give the perception that they make a difference between offenders. They note that even police officers see the criminal justice system as a more systematic way to deal with psychiatric cases. Moreover, some in our society view mental illness as volitional and being used to deliberately avoid punishment. In general, because of fear of the mentally ill person who commits a criminal offense, the public tends to believe that any sentence other than prison is too lenient for serious offenders (Lamb & Weinberger).

The fact is that most persons with mental illness who are involved in the criminal justice system usually have short stays in local jails rather than long stays in prison (Miller, 2003). Many would have never have landed behind bars in the first place if there were adequate community care. On release from either institutional system, however, very little attention has been given to after care planning and treatment, case management services, or social support. It is estimated that of those on probation, about 550,000 are believed to have severe mental illness (Miller). Moreover, Miller relates that of the estimated 600,000 homeless persons in the United States, 240,000 are believed to have chronic mental illness.

Homelessness

Experts cannot agree on the definition of homelessness much less the actual number of mentally ill persons who are homeless. For example, in 1983, an

estimate was given by the Alcohol, Drug Abuse, and Health Administration of there being about 2 million homeless persons in the United States. However, the following year, the U.S. Department of Housing and Urban Development rejected that estimate and released their numbers as being only 250,000 to 350,000 homeless people in the country (Bachrach, 1992).

According to Bachrach (1992), critics believed these numbers to be politically motivated and pointed out that if, conveniently, the homeless people do not exist in large numbers, one need not think about how to serve them. She cautiously reports that current estimates from communities throughout the United States generally run from about one-third to one-half of the total homeless population. Therefore, she notes that any percentages used must consider how this population is defined, which portion of the population is being viewed, and in what part of the country (Bachrach).

Draine, Salzer, Culhane, and Hadley (2002) critically analyzed the approach used in current psychiatric service literature to infer links between mental illness and social problems. They argued that persons with mental illness experience social problems more frequently simply because they live in a world in which these problems are endemic, not just because they are mentally ill. Homelessness is more than a mental health problem. It affects a broader segment of the poor in general and is not unique to people with a mental illness. They note that factors that relate to poverty are complex and include lack of education, problems with employment, substance abuse, and a low likelihood of pro-social attachments. Thus, they want to focus research and policy to better address this

complexity to more effectively provide interventions for persons with serious mental illness.

All states struggle with the problem of inadequate resources for the deinstitutionalized mentally ill. However, a surprising statistic is that the homeless mentally ill population is not predominantly those from long-term stay; but instead from the mentally ill who have never become properly engaged with psychiatric services (Leff et al. 1996). In their study on recidivism in the psychiatric emergency room, Dhossche and Ghani (1998) found that the patients were often young persons with schizophrenia and substance abuse issues. Most often unemployment and homelessness were strong correlates of multiple visits.

In 1997, Morse et al. reported that almost 14 million Americans have been homeless at some point during their lifetime and nearly a third of this population suffers from severe mental illness. They also note that in most cases the mental illness preceded becoming homeless. They followed outpatient mentally ill persons (n = 135) who were homeless or at risk of homelessness for 18 months to determine the most effective type of case management services to obtain housing, stabilize symptoms, and elicit satisfaction with their treatment program. They found that assertive community treatment was superior to the less costly type of brokered case management (Morse et al.).

Community treatment services are provided directly with a 10 client to one staff ratio while brokered case manager services are arranged through a variety of providers. Since there can be a much larger client-to-staff ratio that is on the average of one staff to 85 clients these services are less costly.

Additionally, broker case manager is only required to assess the needs of the client and can then vary the mix and frequency of services for each client on an individual basis. In many cases, the clients fell through the cracks while awaiting services that either forgot appointments, became lost in the system, were denied treatment, or finally just refused services (Morse et al)

The homeless have a mortality rate four times that of the baseline population (Crews et al. 1998). These patient often get labeled as noncompliant due to recidivism, but may actually be victims of poorly designed or mismatched services. Indeed, Cohen (1993) finds that labeling patients this way can lead to a stigmatizing "blame the victim mentality" among professionals. Because of their inherent paranoia, mentally ill patients are more likely to return for follow up and adhere to treatment plans if they trust the health care staff (Crews et al. 1998). Thus, for more successful outcomes, community resources must be well planned and available to the patient (Dhossche & Ghani, 1998; Leff et al. 1996).

Noncompliance

Noncompliance or poor compliance with treatment recommendations plagues every aspect of medical practice. Platt et al. (1994) found that generally only one-third of patients actually follow medical and lifestyle recommendations completely and correctly, another third attempt to follow instructions, but do so incorrectly, and the remainder completely fail to follow them. The reasons are varied and complex, but not confined to patients with a mental illness. In their 1996 study, Johnstone and Sandler determined that limited response to treatment

could occur even when drugs are being taken correctly and adequate plasma concentrations are achieved.

Clearly, patient adherence to a medication regimen is influenced by many competing factors. Some predictors of nonadherence include the decrease in active symptoms, side effects of medications, the patient's health belief system (Perkins, 1999), poor insight, stigma of mental illness, and poor therapeutic alliance (Lacro et al. 2002). Others are environmental issues such as lack of supervision, continuity of care, and even homelessness (Dixon et al. 1997). Similarly, in their study of noncompliance in asthma patients, Schaffer and Lopes (2003) found that psychosocial factors such as rejection of the diagnosis, coping strategies and cultural factors may also lead to lower levels of adherence.

Noncompliance with antipsychotic medications is a common problem in discharged patients. It is estimated that the prevalence of noncompliance is as much as 50% after one year and 75% at two years. In 1997, Dixon et al. reported the annual economic impact of schizophrenia noncompliance rehospitalization costs at $800 million; however, by 2003, the estimated costs directly related to the rehospitalization costs of these patients had risen to between $33 to $65 billion (Cooper et al. 2003; Marder, 2002). Indeed, compliance is a complex issue and varies over time.

In 1992, the Agency for Health Care Policy and Research and the National Institute of Mental Health funded the Schizophrenia Patient Outcomes Research Team (PORT) to develop and make recommendations for treatment of schizophrenia based on research findings. A comprehensive synthesis of the best

well-controlled scientific studies and treatments were reviewed and thirty treatment recommendations along with the supporting evidence emerged three years later. The PORT research project targeted many areas including antipsychotic agents, electroconvulsive therapy, psychological and family interventions, and aftercare follow-up services. The idea was to identify strengths and limitations in the current knowledge base and to begin moving toward an "evidence-based" practice for schizophrenia (Lehman, Steinwachs, & the Co-investigators of the PORT Project, 1998).

In 1998, using questionnaires, interviews, and medical record review the team administered the PORT Client Survey with a random sample of 719 persons with the diagnosis of schizophrenia who were under usual care in two states – one in the South and the other in the Midwest. The team then measured the rate of conformance with the recommendations. They noted that for most recommendations, less than half the patients were receiving treatment that met the recommendation criteria; but treatment of patients in rural areas was closer to the recommendations than those in urban areas. Their conclusion was that there are still broad variations in patterns of care for persons with schizophrenia, even under usual treatment conditions in relationship to scientifically based treatment standards that must be addressed (Lehman et al. 1998).

Some have suggested that we would be better served to view compliance as a continuum since it is associated with relapse and rehospitalization. However, Conley (2000) believes that we should view it as an indication that prescribed treatment is not adequately assisting the patient to achieve his/her goals.

Compliance is best dealt with through repetition. We must provide education to the patient especially on how to participate in monitoring their own medications and include memory enhancements by incorporation of these into their daily routine.

In fact, one of the current challenges in the management of schizophrenia is the treatment of patients who do not respond well to standard therapy. The newer atypical antipsychotics may be helpful to a number of these treatment resistant patients, but they have not been the hoped for panacea. A large majority of patients with schizophrenia who remain institutionalized are made up of the patients who do not respond to typical antipsychotic agents and many more such patients can be expected to have only a partial response (Citrome, 2004).

Antipsychotic medications that were developed around the 1950s made it possible for most patients with schizophrenia to be treated in the community rather than in custodial institutions. These conventional medications or first generation antipsychotic medications were made available in oral liquid and tablets, and both short-term and long-term injectable form. Although inexpensive and available, these drugs often produce significant side effects that are unacceptable to the patient. They include disabling extrapyramidal symptoms (EPS) that produce a zombie-like appearance, hypotension, anticholinergic effects, and cognitive impairment. Moreover, Karki, Bellnier, Patil, and Oretega (2001) found that in the patient with schizophrenia, the effects of conventional antipsychotic medications have shown poor outcomes and high relapse rates even in stabilized patients.

In the 1990s, researchers sought to develop compounds with the equivalent antipsychotic activity but without the terrible side effects such as EPS (Nasrallah & Tandon, 2002). The addition of these newer alternative medications offered better outcomes in the area of improved cognition and compliance when compared to the traditional drugs. However, Pomerance (2004) reports that adherence with the oral atypicals is no better than any other medication. Only the injectable forms can improve patient adherence. Since it assures both reliability and consistency in dosing, Marder et al. (2002) prefer the long-acting injectable antipsychotics, also called depot injection, the route of administration for the long-term treatment of schizophrenia. Patients receiving the injections every 2-4 weeks, on the other hand, may not agree with the researcher' perspective.

Although atypical medications may be 100-200 times more expensive that the generic version of one of the older typical antipsychotic medications, Karki et al. (2001) believe that they are really more cost effective when one considers the total cost of disease management including the cost of multiple hospitalizations. Once thought to be last resort, the atypical agents are now generally the first choice and mainstay of treatment for patients with refractory schizophrenia (Pies, 1999).

Treating patients with drugs that have a decreased likelihood of producing side effects is important for number of reasons. In schizophrenia, long-term treatment is necessary and significant adverse effects can contribute to patient noncompliance with medication leading to relapse. Early and consistent treatment of psychotic symptoms may improve the long-term prognosis of patients

(Duzyurek & Wiener, 1999; Nasrallah & Tandon, 2002). Kennedy et al. (2001) note that atypical neuroleptics have been credited with partially ameliorating the neurocognitive deficits produced by the older agents. This is a vitally important area to consider when treating patients with schizophrenia since cognitive impairments correlate strongly with community functioning, including social and vocational measures.

Talbott, Bachrach, and Ross (1986) conclude that no more that 25% of former mental hospital patients continue in regular after care and despite recommendations to the contrary, fewer than one half take medication regularly. In their review, it was suggested that the most important elements in the treatment of the chronic mentally ill are continuance on medication and participation in some sort of aftercare program. Dysfunction in this area may be implicated in those patients who continue to struggle with their reintegration back into the community despite an improvement in positive and negative symptoms. Since there is evidence that with each relapse schizophrenia becomes increasingly resistant to treatment (Herz, 1999; Karki et al. 2001; Pies, 1999), it is imperative that a variety of strategies be employed to improve patient compliance.

Multiple areas that have potential for positive intervention have been identified. For example, in 2000, Glazer did a 4 week study of noncompliant patients (n = 52) in which he found that they perceived themselves as having less family support and a poorer therapeutic alliance with the treatment team. Successful treatment is dependent on the patient being able to deal with fear, control issues, and relationships – both with family and therapeutic care providers

(Conley, 2000). Likewise, Green (1988) found that the points best able to interrupt the revolving door cycle are when outpatient noncompliance is identified and rehospitalization is recognized. At both junctures, he believed that the community mental health system might intervene to ensure compliance with further outpatient treatment so that further decompensation might be avoided. Given the current climate of healthcare, care in the community involves an increasing number of psychotic patients whose compliance with their medication regimens cannot be closely supervised or monitored. As previously noted, noncompliance is a problem with all patients, but is particularly acute with those receiving antipsychotic medication, partly due to the adverse effects of these drugs and partly due to the perception of some patients that medication is either excessive or altogether unnecessary (Pinto, 1997).

Failure to comply with medication leads to significant risk of relapse and rehospitalization not to mention the risk that deteriorating behavior can lead the patient into acts of self-harm, serious social problems, or even criminal crises. In his study of the attitudes and perceptions by patients (n = 182) living in the community about their medication, Pinto (1997) determined that the majority of the patients surveyed wanted more information from their doctors and nurses. Possibly this flow of information from health care providers is limited due to the assumption that the impaired cognitive ability of chronic mentally ill patients limits their understanding of the effects of their medications and illness. However, it has been demonstrated that patient education may improve compliance.

Psychosocial Education

Education has been shown to increase compliance, improve self-reliance after hospitalization, and reduce rates of readmission for mentally ill patients (Basskin, 1998; Goldman & Quinn, 1988; Penn and Mueser, 1996; Platt et al. 1994; Ruscher, de Wit, & Maazmanian, 1997). Shaffer and Lopes (2003) agree that educating patients is a cost-effective measure that improves outcomes and motivate high-risk patients to adhere to the treatment plan. Over two decades of skills training including chemotherapy has been regarded as a major psychosocial intervention strategy (Hogarty et al. (1991).

Obviously for any medication to be effective, it must be taken. Perkins (1999) points out that there are many factors that impact nonadherence to the medication regimen. To address the issue, therapeutic interventions must address the patient's specific concerns and beliefs. She also notes that a growing body of empirical evidence suggests that clinicians can use psychoeducational and cognitive behaviorally oriented psychotherapeutic strategies to improve medication adherence.

Psychoeducation is defined by Goldman (1988) as education or training of a person with a psychiatric disorder in subject areas that serve the goals of treatment and rehabilitation. It is provided by the patient's treatment team along with antipsychotic medication and other rehabilitation strategies. People with schizophrenia need help with virtually every aspect of their lives and the goal is to strike a balance between their protection and their independence. Since about a third of patients with schizophrenia live with their families, they also need education, support, and reassurance to cope with their loved ones illness.

Moreover, there is evidence that providing education for both the family and the patient lowers relapse rates (Leff, 1989), improves the family atmosphere (Harvard Mental Health Letter, 2001) and reduces family burden (Penn & Mueser, 1996; Pollio et al. 2006).

Skills training that include social and independent living skills have become a psychosocial adjunct to antipsychotic drug therapy and psychiatric rehabilitation. In an 18 month study comparing 41 male veterans who met the criteria for schizophrenia, Eckman et al. (1992) randomly assigned half to either a structured skills training group or a supportive psychotherapy group. They found that the patients who received skills training using educational modules made significant gains in each of the areas taught, while those participating in group therapy did not. These educational modules have been shown to have positive effects on the acquisition of new knowledge and skills. Moreover, the researchers noted that the skills learned during training were retained without significant erosion over a one year follow-up period.

Further support for skills training came from the extensive review by of multiple studies on nonadherence by Fenton, Blyler, and Heinssen (1997) from the period of 1960 to mid-1990. They found that educational interventions simply aimed at providing factual information about schizophrenia and its treatment have been ineffective at increasing compliance. However, when skills training was provided in areas related to medication, it was more effective and the participants in the educational group intervention made fewer knowledge errors at the one month follow-up than those who were in the control group.

In 1996, Dilk and Bond conducted a quantitative meta-analysis covering the decades of 1980 and 1990, to evaluate the research on skills training for individuals with severe mental illness. They reviewed 68 studies and found that although the methodology was generally very good, most of the studies were done in psychiatric hospital settings and involved mostly male or all-male samples. They concluded that the predominant approach in the skills training literature is social skills training; but this approach can't be extrapolated to everyday functioning. They also believe that more research is needed using more diverse populations and diagnostic groups other than schizophrenia. Nevertheless, they were in agreement with most other reviews that behavioral skills training for persons with severe mental illness is effective for teaching inpatients interpersonal and assertiveness skills.

Recent emphasis on community care has produced various models for family intervention. Family based programs use the resources of the family unit to increase compliance and decrease the impact of stressors that could trigger relapse. Families become an invaluable component in the long term care of these individuals. Although the effort to maximize the functioning of the ill family member increases the burden that these families must carry (Doornbos, 2001), psychoeducational family programs have been found to be effective. Razali and Yahya (1995) conducted a study of 225 patients with the diagnosis of schizophrenia who were admitted to a psychiatric unit for relapse and found that compliance was significantly better when medication was supervised at home. They concluded that psychoeducational family programs effectively reduced

relapse and although medication compliance was not their sole mechanism of action, it was an important side effect.

Several studies have found that patients who are knowedgable about their disease and treatment are more motivated to adhere to the treatment plan (Birchwood et al. 1993; Drake et al. 1994; Platt et al. 1994; Shaffer & Lopes, 2003). In their 2004, retrospective study of 4,325 California outpatients with schizophrenia being treated with antipsychotic medication, Weiden et al. found that lower medication compliance was the most statistically significant risk factor associated with a higher risk of hospitalization. Given this strong association, Haywood et al. (1995) emphasized the importance of patient education as a cost-effective intervention to break the "revolving door" phenomenon among the mentally ill.

Summary

Schizophrenia is a serious mental health problem that affects roughly 1% of the population. It has devastating effects on the individual, their families, and our society. The very nature of the disease is recidivism and readmission even with medication adherence; however, because of their flawed thinking, many patients relapse due to noncompliance with medication. Healthcare professionals must avoid labeling the seriously mentally ill patient who does relapse as noncompliant as this stigmatizes them and may compromise their future care. Many studies have demonstrated that adherence is learned behavior and the educational strategies that target symptoms, service continuity, and daily structure are most effective in improving medication compliance and

reducing rehospitalization. Poorly designed, mismatched services, or no outpatient services on discharge from mental hospitals may lead to the revolving door cycle of medication/treatment noncompliance and rehospitalization. Other issues facing the mentally ill patient are unemployment, stigma, substance abuse, suicidal thoughts, physical illness, and homelessness. Additionally, a small number of patients with schizophrenia demonstrate violent or bizarre behaviors in public that may gain them entry into the criminal justice system rather than a hospital.

Chapter 3

Methodology

Introduction to the Study

The purpose of the study was to determine the effect of participation in patient psychosocial education activities while hospitalized had on admission rates among patients with schizophrenia. Of the research on the effects of patient education, few specifically target the patient with schizophrenia for study. Chapter 3 provides a description of the design, methods, procedures, and data scollection and analysis used in the study.

Design

The study was a retrospective design using data from a medium sized state mental hospital. Data were accessed over a nine year period (July 1, 1997 to June 30, 2006). The study compared data from both sample and control groups.

Selection of Subjects

Sample selection for this study was convenience. The sample included all patients with the diagnosis of schizophrenia admitted for the first time during the 12 month period from July 1, 1997, to June 30, 1998, to the Acute Care Program of a 172 bed state psychiatric facility. These patients were coded as to whether they received the intervention or not. Admission data for the period of July 1, 1998, to June 30, 2006, were then reviewed to determine the readmission rate, intervals between admissions, and length of stay for the original sample.

Protection of Human Subjects

Data were obtained from complied statistics from the departments of Medical Records, Patient Education, and Standards and Compliance in the facility. These data were coded to assure patient anonymity. They included the following demographic information: age, gender, diagnosis, and global ability to function (GAF). Otherwise, these data have no identifying information about the patients.

On admission to the facility, the patient signs for release of information to the hospital. Data are collected by the hospital for quality improvement activities using patient numbers. When this information is aggregated into statistical form, there are no specific patient identifiers. Since these data are used for risk management and quality improvement activities, they may become public record. This study was a review of retrospective data and no new data were gathered. Only variations within and between the groups identified are statistically reported. Therefore, there is no risk to the subjects and their anonymity has been assured.

Procedures

Permission was obtained from the Research Committee of the psychiatric facility to access the statistics for the study (Appendix A). Form A was submitted to the Human Subjects Review Board of The University of Tennessee for approval to conduct the study (Appendix B). However, due to the retrospective nature of the study, the only approval required was from the Department of Education Administration and Policy Studies.

The list of all patients who were admitted during the study period of July 1, 1997, to June 30, 1998, was obtained from the Medical Records Department of

the study hospital. During this period, there were 1,526 admissions. The patients with the target diagnosis of schizophrenia were se1ected from these admissions (n = 466). There were four patients under the age of 18 years who were eliminated from the study group since they were in another building and would not participate in educational groups. The study included only adult patients (n = 462).

All patients met with their multidisciplinary team that included a psychiatrist, a Registered Nurse and social worker. During this meeting, treatment goals were formulated with the patient including assignment to various group activities and formal education classes (e.g., symptom management, medication management, leisure skills, anger and stress management, and others) as part of their inpatient treatment. Although participation in the educational classes is expected since it is part of treatment, patients have the right to refuse to participate. It was from these assigned educational activities that the study groups were selected. One group were those who were assigned and participated in the psychosocial education classes while the other group were those who were assigned, but did not participate in the educational classes.

Intervention

Antipsychotic medication has enabled many patients with symptoms of psychosis to live in the community. However, medication alone has been ineffective in helping patients acquire the coping skills they require for life in the community. The social skills training model designed by the rehabilitation researchers at the UCLA Clinical Research Center for Schizophrenia and

Psychiatric Rehabilitation offered an organized approach to the deal with the deficits presented by patients living with chronic mental illness. The model has four major components – social schemata, social skills, coping efforts, and social competence (Liberman et al.1986). The idea is to assist the patient who has deficits in social skills to learn, evaluate, and practice appropriate responses to social situations they may encounter outside the hospital setting. For the often regressed, distractible, thought-disordered patient with schizophrenia sessions must be very structured, goal directed, but time limited. Thus, the skills modules were implemented to provide these learning activities at the study hospital.

In the mid-1990s, in addition to the usual treatment provided patients who were admitted to the medium sized state hospital in the study, they were offered the opportunity to participate in structured psychosocial education classes. The social skills training modules developed by Liberman et al. (1986) at the UCLA Clinical Research Center for Schizophrenia and Psychiatric Rehabilitation were purchased for use in the classes. Specifically, the selected groups for this facility included symptom management, medication management, anger and stress management, and leisure skills. Staff from the disciplines of Nursing and Activity Therapy received training on managing small groups, using refocusing skills, and the specific modules to be used.

The skills areas (content) and the learning activities (techniques) from the modules were taught to the group of six to eight patients and were held 20 minutes four times a week. The learning activities for each of the skills areas included identifying goals with the group, videotaped scenes for

discussion/question and answer, role play with positive feedback, problem solving using real-life situations that the patient might encounter in healthcare, and homework for practice of skill being taught. Finally, a checklist that evaluated each session (Appendix D) was completed and placed on the patient's chart by the instructor so that the treating physician and treatment team who had assigned the patient to the educational activity could also monitor the patient's progress.

Interpretation of the Data

The data for the study were gathered retrospectively from aggregated statistics compiled by the facility for Quality Improvement activities. Individual patient identity and tracking was not the focus of the facility's purpose for the data. So, patients who had multiple readmissions, as most of these did, were repeatedly counted across the study years which confounded the data interpretation. In fact, many remained in the hospital for extended periods often crossing several years. Thus, data analysis using inferential statistical measures were not only inappropriate, but also impossible with these data.

Descriptive statistics were computed on all variables including age, gender, and GAF scores and included measures of central tendency and variability. Descriptive statistics were also used to describe the differences between the two groups, those who received the educational intervention and those who elected not to participate in the educational intervention on the recidivism rate, length of stay and interval between admissions.

There are three research questions guiding this study:

1. Do patients with schizophrenia who receive psychosocial education have lower relapse rates (recidivism) than those who do not receive psychosocial education? Question 1 was answered with descriptive statistics.
2. Is there a difference between the length of stay for readmitted patients with schizophrenia who have participated in the psychosocial education and

   those who have not? Question 2 was answered with descriptive statistics.
3. Is there a difference in the length of intervals between admissions for the group who had psychosocial education and the group who did not? Question 3 was answered with descriptive statistics.

Chapter 4

Findings of the Study

Introduction to the Study

The purpose of the study was to determine the effect that participation in patient psychosocial education activities while hospitalized has on readmission rates among patients with chronic schizophrenia. The research questions for the study were:

1. Do patients with chronic schizophrenia who receive psychosocial education have lower relapse rates (recidivism) than those who do not receive psychosocial education?
2. Is there a difference between the length of stay for readmitted patients with chronic schizophrenia who have participated in the psychosocial education and those who have not?
3. Is there a difference in the length of intervals between admissions for the group who had psychosocial education and the group who did not?

The retrospective data were obtained from compiled statistics over a 12-month period from the Medical Records Department and the Department of Standards and Compliance from all adult admissions to the Acute Care Program of a medium sized state psychiatric hospital. Findings and results of the study are reported and discussed in this chapter using the research questions to guide the study. The data report begins with identification of the sample and demographic information.

Sample Identification

Sample selection for this study was convenience. The sample of 466 patients with the target diagnosis of schizophrenia for the study was selected from 1,526 admissions to the Acute Care Program of a 172 bed state psychiatric facility during the study period from July 1, 1997 to June 30, 1998. However, four patients under the age of 18 years who were housed in another building were eliminated from the sample, which left the sample at 462 adult patients.

The sample included adult patients with the diagnosis of schizophrenia who were admitted during the twelve month period from July 1, 1997, to June 30, 1998. On admission, all patients are assigned to patient education groups following their first treatment team meeting. Although participation in the educational classes is expected as part of treatment, patients have the right to refuse to participate. Thus, two intervention groups were determined from these patients. One group was those who were assigned and participated in the psychosocial education classes. The other group was those who were assigned, but elected not to participate in the educational classes.

The 462 participants included 279 males (60%) and 183 females (40%). Of these, there were 243 (53%) white, 137 (30%) black, and 82 (18%) other. The higher number of males is consistent with the findings of Harrow, Grossman, Jobe, and Herbner (2005) in their 15 year follow-up research on recovery for patients with schizophrenia. They report that the diagnosis of schizophrenia is more typical for males of this population, but females are more likely to be given diagnoses of depressive or other types of psychotic disorders.

Comparison Between the Groups

The following data are reported to show the similarities between the self-selected intervention and non intervention groups. There were five types of schizophrenia in the sample as determined by the admitting physicians at the participating facility. These included paranoid, disorganized, affective, undifferentiated, and residual. Schizophrenia, a medical diagnosis with subtypes, was defined by the predominant symptomology at the time of evaluation (DSM-IV, 2000). The frequency of the different types of schizophrenia in the sample were disorganized -1 (.2%), residual - 3 (.7%), affective - 111 (24%), undifferentiated - 113 (24%), and paranoid - 234 (51%) (Table 1).

There were 173 (38%) patients in the intervention group (those who participated in patient education classes) while the control group (those who were assigned, but did not participate in the classes) had 289 (62%) patients. None of the residual type participated in the educational groups and there was only one person from the disorganized type who participated. The intervention group consisted of 90 females and 83 males while the control group had 93 females and 196 males. Chi Square analysis found that there was no significant difference between the groups ($X^2 = 3.11$; $df = 1$; $p > 0.05$) in spite of the difference in the size of the groups. Additionally, the patients who chose the educational intervention were just slightly older than those who did not ($M = 40.58$; $SD = 16.47$ versus $M = 39.42$; $SD = 15.53$) (Table 2).

Another tool used by the psychiatrist to assess the patient at the time seen is the global assessment of functioning (GAF). This is a hypothetical continuum

Table 1. Frequency of the diagnosis in the sample

	Disorganized	*Paranoid*	*Affective*	*Undifferentiated*	*Residual*	Total
Educated	1	79	58	36	0	173
Not Educated	0	155	53	77	3	289
Total	1	234	111	113	3	462
Percent of Total	0.2%	51%	24%	24%	0.7%	99.9%

Table 2. Age of the sample

	N (Patients)	*Mean (Age)*	*SD*
Educated	173	40.58	16.47
Not Educated	289	39.42	15.53
Total	462		

ranging from 0 to 100 points and considers dangerousness, impairment in judgment, behavior influenced by delusions or hallucinations, and degrees of social, occupational or school functioning (DSM-IV, 2000). It is for reporting the clinician's judgment of the individual's overall level of functioning at the time seen and can vary from day to day.

There was no significant difference in the GAF between the groups (*M* = 15.81; *SD* 16.97); however, 43% (*n* =197) of the admissions were missing scores (Figure 1). Unlike today, at the time the study began, the GAF was not required to be recorded as part of the diagnosis at the time of admission. Also, it is not surprising that the larger number of scores are between 10 and 20 since these

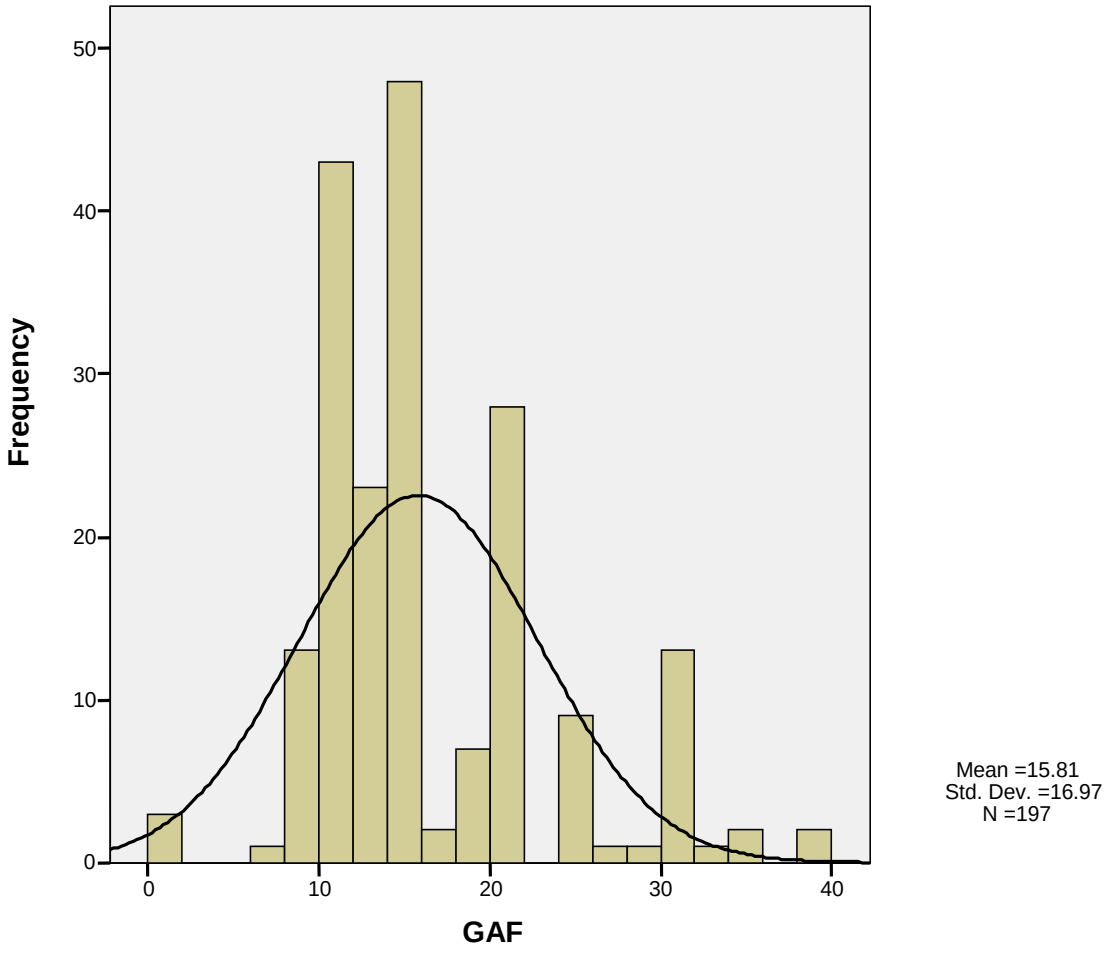

Figure 1. Global assessment of functioning for the sample

scores also mirror one aspect of the criteria for an involuntary psychiatric admission Such scores denote danger to self or others, either persistent danger (score of 1 to 10) or some danger (score of 11 to 20). Missing scores are recorded as 0 on the scale.

There was also no difference in the GAF scores between males and females. This finding was contrary to the study by Atalay and Atalay (2006) that found that female patients scored higher than males on the GAF scale. Regardless, on all variables, the findings show that the groups are remarkably similar.

Findings

Research Question 1: Relapse Rates

The two groups were compared to answer the first research question: *Do patients with chronic schizophrenia who receive psychosocial education have lower relapse rates (recidivism) than those who do not receive psychosocial education?*

It is an accepted fact that the disease process of schizophrenia is likely to produce recurrent psychotic episodes regardless of the patient's compliance (Geller, 1986; Lacro et al. 2002; Prince, 2004). Indeed, from the sample (n = 462), there were a total of 42 (9.1%) of patients who had more than one admission during the period of July 1, 1997 to June 30,1998. Of these 42, eleven (4 females, 7 males) received the educational intervention and 31 (9 females, 22 males) elected to not participate in the educational intervention. Interestingly, there were 47 (27%) from the original group of 173 who had chosen the educational intervention who

never returned to the hospital. Of these, there were 62 (40%) females and 93 (60%) males.

Following the study year, the return rate for the both groups of patients was tracked over the eight year period and if they returned, the number of days was counted. In July 1, 1998-June 30, 1999, 33 (19%) of the patients from the intervention group returned while 207 (72%) of the control patients returned. The 1999-2000, groups had 62 (36%) of the intervention patients versus 145 (50%) of the control patients to return. In 2000-2001, 36 (21%) from the intervention group returned while 124 (43%) of the control group returned. The 2001-2002 period had 44 (25%) patients from the intervention group versus 127 (44%) patients from the control group to return. In 2002-2003, 29 (17%) of the patients from the intervention group returned while 127 (44%) of the control patients returned. In 2003-2004, 27 (16%) of the intervention patients returned versus 88 (30%) of the control group patients returned. The 2004-2005, there were 40 (23%) patients from the intervention group who returned while 118 (41%) of the patients from the control group returned. In 2005-2006, 44 (25%) of the patients from the intervention group returned while 115 (40%) patients from the control group returned (Figure 2).

The data for the study were gathered retrospectively from aggregated statistics compiled by the facility for Quality Improvement activities. Individual patient identity and tracking was not the focus of the facility's purpose for the data. Patients who had multiple readmissions, as most of these did, were repeatedly counted across the study years which made data analysis using

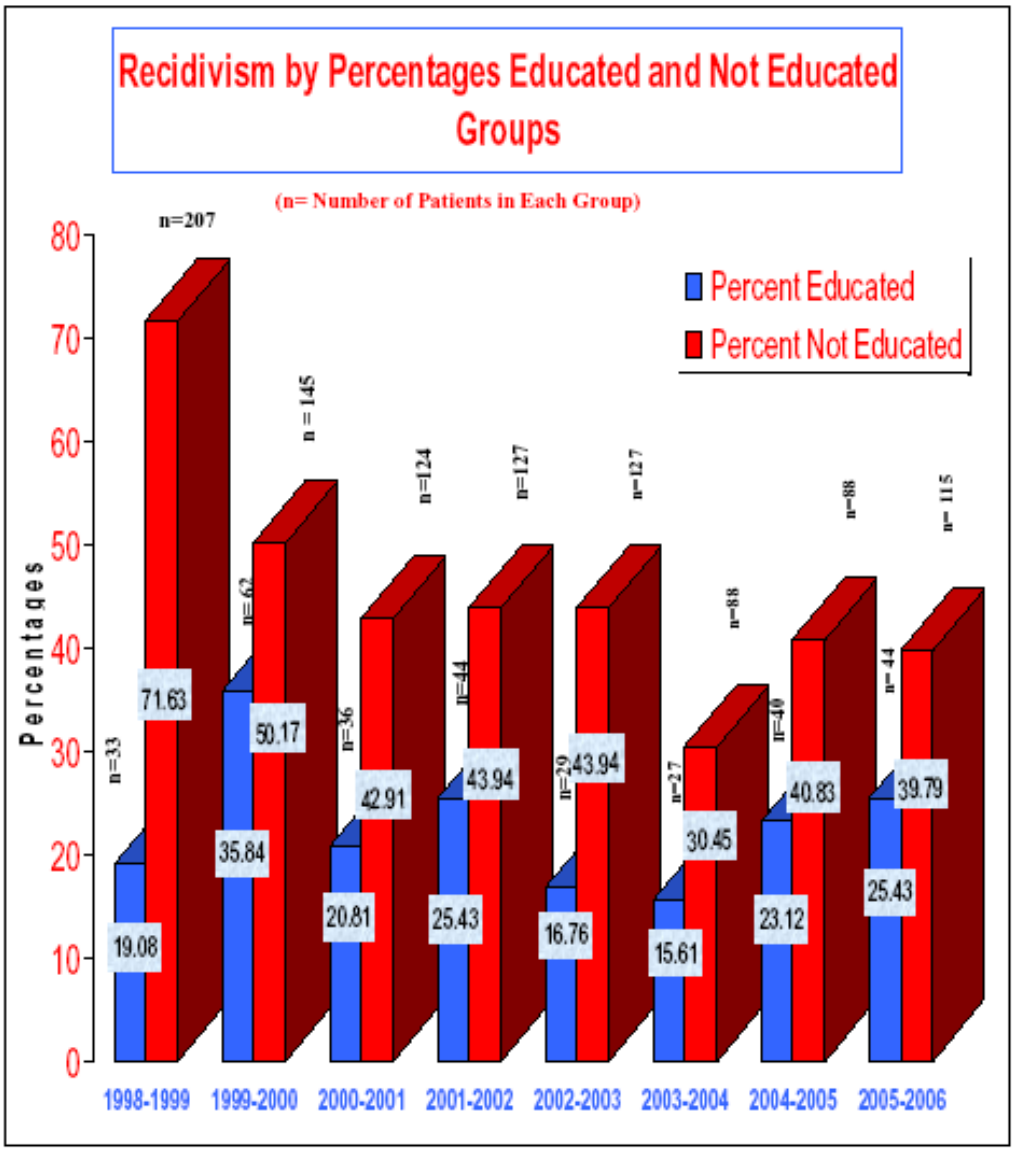

Figure 2. Recidivism by percentages educated and not educated groups July 1, 1998-June 30, 2006

inferential statistics such as *t test* or ANOVA inappropriate. Therefore, descriptive statistics were used to interpret the data for answering the research questions about the recidivism rate for the patients.

There were actually only 126 patients from the study group of 173 who returned for admission over the 8-year period, but they had a return rate of 315. The percentage rate of return for the patients across the years ranged from a low of 15.6% to the highest of 35.4%. The control group had only 134 of the 289 who returned for admission, but their return rate was 1,021. The percentage rate for the control group ranged from the lowest of 31% to the highest of 71.6%. Consequently, the recidivism rate noted in both the percentage and number of patients for the control group was higher than for the intervention group.

Research Question 2: Length of Stay

The total number of inpatient days for each group was divided by the number of patients in each group to obtain the average length of stay (LOS) to answer the second research question: *Is there a difference between the length of stay for readmitted patients with chronic schizophrenia who have participated in the psychosocial education and those who have not?*

For 1997-1998, the first year of the study, the intervention group (n = 173) and the control group (n = 289) showed only small differences in the LOS between those who received educational intervention (M = 61.50; SD 1.23) and those who did not (M = 67.00; SD 0.87) (Table 3). The two groups were then compared the next 8 years.

Tracking readmissions over the eight year period, the average length of

Table 3

Length of stay for the sample 1997 – 1998

	N *(Patients)*	*Mean* *(Number of days)*	*SD*
Educated	173	61.50	1.23
Not Educated	289	67.00	0.87
Total in Sample	462		

stay for the 28 patients from the group who had the educational intervention from July 1, 1998- June 30, 1999, was 68 days while the not educated patient group of 195 had 54 days. The 1999-2000 year was 34 days for the 58 patients from the group who chose the educational groups and 38 days for the 139 patients who did not choose the intervention. The 2000-2001 patient educational group of 33 members had 50 days while the not education group of 119 patients had 42 days. The 2001-2002 year was 29 days for the 42 patients from the group who chose the educational groups and 40 days for the 123 patients who did not choose the intervention. The 2002-2003 year was 21 days for the 28 patients from the group who chose the educational groups and 19 days for the 122 patients who did not choose the intervention. The 2003-2004 year was 33 days for the 25 patients from the group who chose the educational groups and 22 days for the 87 patients who did not choose the intervention. The 2004-2005 year was 20 days for the 39 patients from the group who chose the educational groups and 31 days for the 116 patients who did not choose the intervention. The 2005-2006 year was 20 days for

the 43 patients from the group who chose the educational groups and 20 days for the 113 patients who did not choose the intervention (Figure 4).

As noted there were 40 intervention group patients and 155 of the control group who never returned after their initial admission. This made the number of patients to be followed: intervention group (*n*=126 of 173) and the control group (*n*=134 of 289). However, due to the retrospective nature of the study and the aggregated data available to the researcher from the study facility, individual patients were unable to be tracked. The multiple numbers of admissions for these remaining patients led to the total number of patients in the data over the 8 years to be inflated to a total of 296 to 315 patients for the intervention group and 1,014 to 1,021 patients for the control group. These overlapping admissions for individual patients across the years prohibited data analysis using inferential statistics; therefore, descriptive statistics were used to interpret these data.

There were a total of 74 patients over the eight year period primarily from the educational intervention group who had LOS of one year or more. These included 15 patients from July 1, 1998-June 30, 1999, 17 patients from 1999-2000, 8 patients from 2000-2001, 11 patients from 2001-2002, 10 patients from 2002-2003, 6 patients from 2003-2004, 6 patients from 2004-2005, and 1 patient from 2005-2006. These overlapping LOS from year to year led to significant spikes in the patient LOS in several of the years.

The average LOS for the intervention group for 4 of the 8 years was greater than the control group. In 1998-1999, the patients stayed 14 more days; 2000-2001, the patients stayed 8 days longer; 2002-2003, their stay was 2 days

longer; and 2003-2004, the stay was 11 days longer. In 2005-2006, both groups stayed the same number of days (20). The control group had 3 years with longer stays. They were 1999-2000 with 4 days; 2001-2002 with 11 days; and 2004-2005 also with 11 days. Thus, these and other external variables that were unable to be controlled for led the intervention group to have 35 more days than the control group.

Another factor affecting the LOS for these patients could have been in response to changes made in the funding to the state psychiatric facilities through the managed care and TennCare programs after 1999. These changes affected the funding available for discharge placement and caused small groups of patients to have very high numbers of inpatient days that crossed over multiple years of the study. There was also an increased number of patients in the data over the 8 years to total 296 to 315 for the intervention group and 1,014 to1,021 for the control group. These overlapping admissions for individual patients across the years prohibited data analysis using inferential statistics; therefore, descriptive statistics were used to interpret these data.

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Research Question 3: Interval between Admissions

The two groups were then compared with respect to the intervals from discharge to the next admission over the next 8 years to answer the third research question: *Is there a difference in the length of intervals between admissions for the group who had psychosocial education and the group who did not?*

During the period of 1997-1998, of the 462 patients in the sample, there were 173 patients in the intervention group, and 289 patients in the control group. For the patients in this year, the interval between admissions for those who had the educational intervention was 18 days while the interval for the patients from the control group was 10 days. (See Figure 3.)

In the group of patients in the July 1, 1998-June 30, 1999, the interval from discharge to readmission was 217 days for the intervention group versus 50 days for those in the control group. For the period of 1999-2000, the interval was 236 days for the intervention group versus 74 days for the control group. In 2000-2001, the interval from discharge to readmission was 256 days for the intervention group versus 110 days for the control group. The interval for the years of 2001-2002, was 367 days for the intervention group versus 169 days for the control group. The 2002-2003, interval between discharge and readmission was 346 days for the intervention group and170 days for the control group. In the years of 2003-2004, the interval for the intervention group was 431 days while the control group had 233 days. The interval for the years of 2004-2005 was 445 days for the intervention group and 274 days for the control group. In 2005-2006, the interval was 448 days for the intervention group while the control group interval was 259 days (Figure 4).

The 126 patients remaining from the 173 from the intervention group and the 134 of the 289 from the control group through multiple readmissions across the 8 years of the study made the number of patients to be considered for the

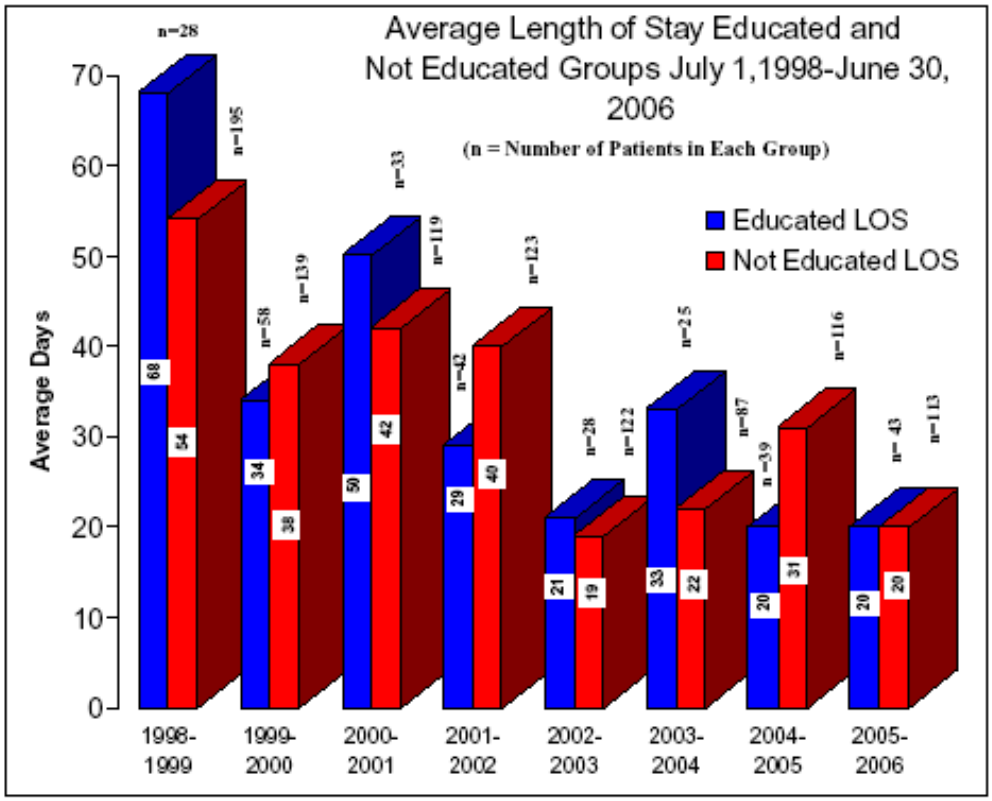

Figure 3. Average length of stay by educated and not educated groups July 1, 1998-June 30, 2006

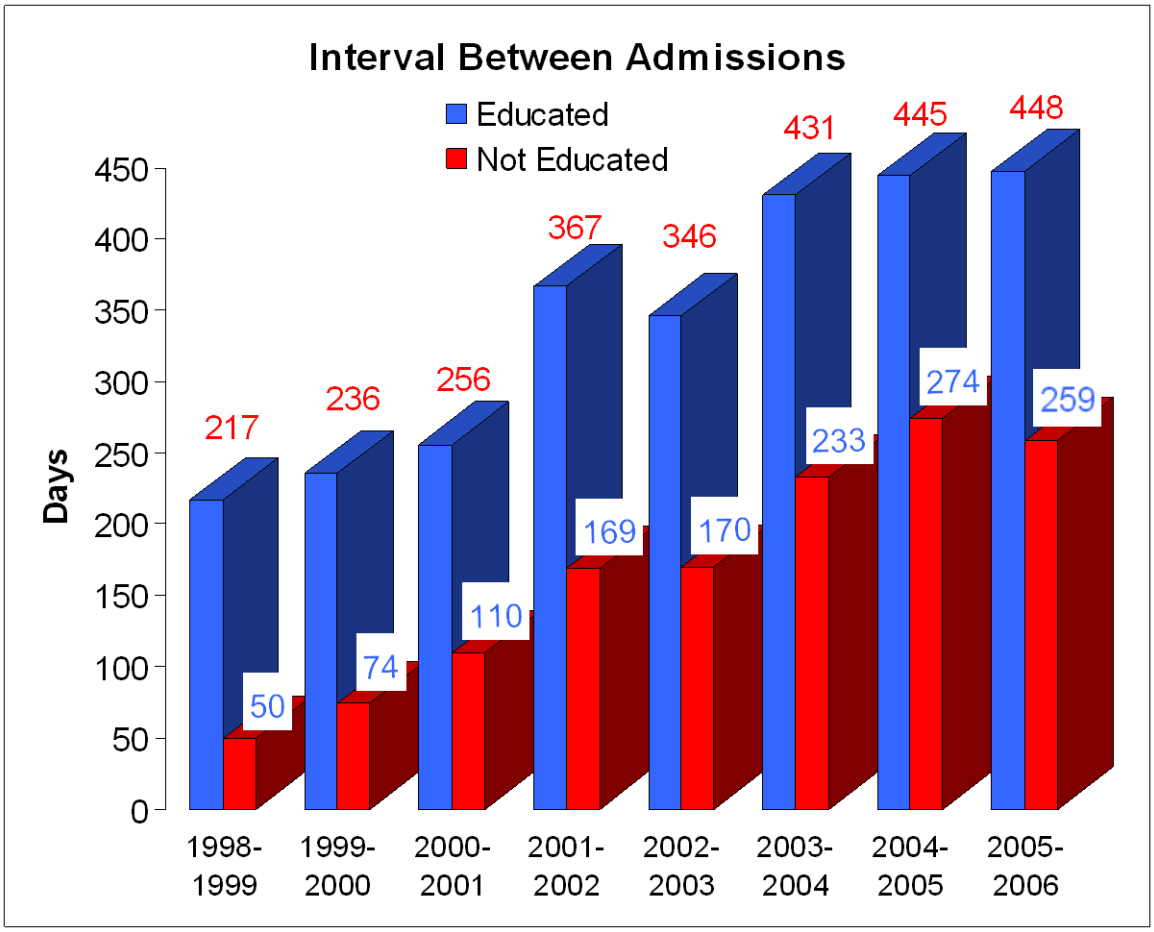

Figure 4. Interval between admissions for educated and not educated groups July 1, 1998-June 30, 2006

interval computations rise to 296 for the intervention group and 1,014 for the control group. Since the data for the study were gathered retrospectively from aggregated statistics compiled by the facility for Quality Improvement activities, individual patient identity and tracking was not done. Most patients had multiple readmissions and were repeatedly counted across the study years. It was this phenomenon that made the use of inferential statistics inappropriate to analyze these data. Therefore, the graph was used to describe the difference in the interval data between the two groups. It clearly demonstrated that the difference between the two groups was remarkable. The patients in the intervention group had intervals between their last discharge to the next admission of 146 to 198 days longer than the control group.

Summary

The 462 study participants included 279 males and 183 females with the diagnosis of schizophrenia who had an average age of 40 years. From these patients, 173 participated in patient education classes and 289 elected to not participate. The recidivism rate in both the percentage and number of patients for the control group was higher than for the intervention group. Due to uncontrolled-for confounding variables, the differences between the two groups were not as clearly defined. In fact, in 4 of the 8 years, the intervention group had slightly longer lengths of stay. However, the research did show the value of patient education in positively impacting the intervals between readmissions for the two groups over the 8 years that were examined.

Chapter 5

Findings, Conclusions, and Recommendations

Summary

Many studies have suggested that a better-informed patient can be more self-reliant after hospitalization which may increase compliance and reduce the rate of readmission. Shaffer and Lopes (2003) note that adherence is a learned behavior and can be improved with specific strategies directed toward improving adherence to the therapeutic regimen, practice by the patient, and reinforcement by healthcare providers. Of the research done on the effects of patient education, few specifically target the patient with schizophrenia for study. Schizophrenia is a serious mental health problem that affects roughly 1% of the population and has a nonadherence rate of close to 50% (Lacro et al. 2002). This has profound implications for our society, both in terms of human suffering and in prolonged and devastating financial costs (Horgan, 1990). Thus, the purpose of this study was to determine the effect that participation in patient psychosocial education activities while hospitalized has on readmission rates among patients with chronic schizophrenia.

The study was a retrospective design using data from a medium sized state mental hospital. Data were accessed over a nine year period (July 1, 1997 to June 30, 2006). It compared the readmission rate of patients with chronic schizophrenia who did and did not participate in psychosocial education activities to see if patient education made a difference in either the readmission rates, interval between admissions, or length of stay for this diagnostic group.

The research questions for the study were:

1. Do patients with chronic schizophrenia who receive psychosocial education have lower relapse rates (recidivism) than those who do not receive psychosocial education?
2. Is there a difference between the length of stay for readmitted patients with chronic schizophrenia who have participated in the psychosocial education and those who have not?
3. Is there a difference in the length of intervals between admissions for the group who had psychosocial education and the group who did not?

The convenience sample of adult patients was selected from a 12-month period (July 1, 1997 to June 30, 1998) using the 1,526 admissions to the Acute Care Program of the 172 bed state psychiatric facility. There were 462 adults with the target diagnoses included in the sample. On admission, the patients are assigned to patient education groups by their respective treatment teams and although participation in educational classes is expected as part of treatment, patients have the right to refuse. It was from these patients that the two intervention groups were formed – those who participated in the educational classes and those who elected to not participate.

The data for the study were gathered retrospectively from aggregated statistics compiled by the facility for Quality Improvement activities. Individual patient identity and tracking was not the focus of the facility's purpose for the data. So, patients who had multiple readmissions, as most of these did, were repeatedly counted across the study years. Considering that there were 40 patients

from the intervention group and 155 of the control group who had no return admissions, the study only tracked 126 from the intervention group and 134 from the control group over the remaining 8 years. However, the repeated relapses with rehospitalization for these remaining patients made the patient count 315 for the intervention group and 1,021 for the control group. The data collection nature of these data made data analysis using inferential statistics such as *t test* or ANOVA inappropriate. Therefore, descriptive statistics were used to interpret the data for answering the research questions about recidivism, LOS, and interval between admissions.

Findings

The intervention groups included 279 males (60%) and 183 females (40%). Those who chose the educational groups were slightly older than those who did not (M = 40.6; SD 16.5 versus M = 39.4; SD 15.5)**.** There were more males than females in the study since the diagnosis of schizophrenia is more typical for males of this population while females are more likely to be given diagnoses of depressive or other types of psychotic disorders (Harrow et al. 2005). Nevertheless, Chi Square analysis found that there was no significant difference between the groups (X^2 = 3.11; df =1; p> 0.05).

The intervention group consisted of these types of schizophrenia: Disorganized-1 (.2%), residual-3 (.7%), affective-111 (24%), undifferentiated-113 (24%), and paranoid-243 (51%). None of the residual type and only one person from the disorganized type participated in the educational groups. This could be because although these disorders are absent of delusions or hallucinations, they

are more likely to have disorganized speech and behavior (DSM-IV, 2000). The paranoid type were the largest diagnostic group represented in the educational intervention group (n = 56), followed by affective (n = 38), and undifferentiated (n = 30). They are the also the diagnostic groups to most likely to have GAF scores below 20. These patients are plagued by delusions or hallucinations, but organized in their thinking and behavior. Additionally, most patients in these diagnostic categories are usually very bright intellectually.

The global assessment of functioning (GAF), a scale from 0-100 that is used by the psychiatrist to assess the patient's symptom severity, dangerousness, and functioning level at the time of admission. Contrary to an earlier study which found that female patients scored higher than males on the GAF scale (Atalay and Atalay, 2006), this study found no difference in the GAF scores between males and females. Although it is used as a standard in the admission diagnosis for involuntary admissions to the psychiatric hospital today, the GAF was not required at the time of this study. Of the 462 study patients, only 197 (43%) of them had their admission GAF scores recorded. Regardless, on all variables, the findings show that the groups are very similar.

The first research question asked: *Do patients with chronic schizophrenia who receive psychosocial education have lower relapse rates (recidivism) than those who do not receive psychosocial education?*

To answer this question, the patients from the 1997-1998 original sample were reviewed. It was found that there were 47 (27%) from the group of 173 who chose the educational intervention and 155 (54%) from the group of 289 who

elected not to participate in the educational intervention who did not return to the hospital after their initial admission. The intervention group included 19 (40%) females and 28 (60%) males while the control group had 62 (40%) females and 93 (60%) males.

Following the study year, the return rate for both groups was tracked and if the patients were readmitted, the number of days was counted to see if there was a difference between the two groups. It was found that both the number of patients and return rate for the years following the initial intervention was considerably lower for patients who had the educational intervention (*M* = 37.0; *SD* 3.84) than those in the control group (*M* = 126.8; *SD* 11.01**).**

The length of stay (LOS) was the focus of the second research question*: Is there a difference between the length of stay for readmitted patients with chronic schizophrenia who have participated in the psychosocial education and those who have not?*

For this determination, when the patients were readmitted, the total number of inpatient days for each group was divided by the number of patients in each group to obtain their average LOS. In the first year if the study, the two groups had very similar LOS between the two groups-educational group (*M* = 61.5; *SD* 1.23) and control group (*M* = 67.0; *SD* 0.87).

In 4 of the 8 years of the study (1998-1999, 1999-2000; 2000-2001, and 2003-2004), there were 74 patients, many in the educational group, who had LOS of one year or more. In fact, several patients had longer than 500-day stays during their one admission that crossed over more than one fiscal year during the study.

This phenomenon caused those from the educational intervention group to stay longer than the control group.

The slight increase in these LOS was most likely due to funding changes for the state hospitals that occurred with the change from Medicaid to TennCare in the late 1990s and the advent of new managed care contracts. These changes caused small numbers of patients with discharge placement issues to have very high numbers of inpatient days. However, the remaining years showed no remarkable differences between the number of days in the hospital for either of the groups.

The final research question asked: *Is there a difference in the length of intervals between admissions for the group who had psychosocial education and the group who did not?*

To answer this question, the length of the interval between admissions for the two groups was compared. The time from the last discharge to the next admission was counted annually for each patient for each year. It was noted that in 1997-1998, the two groups were very close with the intervention group having 18 days between the last discharge and next admission while the control group only had 10 days. However, over the remaining years of the study, the educational intervention greatly outdistanced the control group by having much longer periods from discharge to the next admission. The difference was between 146 to198 days.

Discussion

In relation to the existing literature presented in Chapter 2, schizophrenia is among the diagnoses most likely to produce recurrent psychotic episodes and accounts for a large portion of all long-stay hospital days (Citrome, 2004; Kleyman & Rozenfeld, 2001; Surber et al. 1987). The study validated the findings of these various researchers since when relapse did occur, many of these patients did have an increased length of stay. The findings were also consistent with those of Stenberg et al. (1998) who found that the educational modules developed by Liberman et al. (1986) had little effect on the number of readmissions, but did have an effect on their duration.

A limitation of the study is that these data are entirely from the admissions of a single state psychiatric hospital. So, an uncontrolled variable that must be considered is if the patient needs hospitalization that s/he may go somewhere else. Indeed, Swett (1995) notes that any study of readmission must take into account the possibility that the patient might be readmitted to another hospital. Although there is no guarantee that this may not have occurred in this study, given the paucity of most of their resources and the severity of most of the patient's symptoms, unless they travel out of this area, they are likely to be admitted to the state hospital rather than a private facility in the city.

Other limitations to the study that possibly affected the basic premise of the research questions must be considered. First, during the 8 year period, there were changes in healthcare funding for the state psychiatric hospitals that increased some patient LOS since viable placement options disappeared. Then,

there were changes in practice by psychiatrists to the use of the newer atypical antipsychotic drugs that are more efficacious, which may have also affected the LOS. There was inconsistent recording of GAF scores on admission in 1997-1998, which resulted in 43% of the scores to be missing. Moreover, given the subjective nature of the criteria, the interpretation of the diagnostic criteria for the different types of schizophrenia by different practitioners may have changed over time.

Consideration must be given to the fact that although the educational groups were an expectation as part of treatment; the patients could refuse to participate. The voluntary nature of participation brings into question the motivation of those who did participate. The patients with the diagnosis of paranoid type were largest group who participated in the educational groups. It is uncertain whether they were more receptive to training, had authority issues, or were just worried about what might be said (about them) in the groups. The educational level of the sample was not included in the demographics and receptivity to learning was not a question for this study. However, more females than males were in the intervention group leading to questions about gender expectations, conformity, and desire to please the staff.

Intervening factors that might affect the study are the educational classes themselves. Although there were structured topics for the educational groups, there were multiple instructors for the classes making it difficult to assure either the quality of the educational instruction or the content for the sample. Also, the ability of the patients to choose not to participate in the assigned groups could

have biased the sample. Similarly, the type patient who actually participated may have been biased to one diagnostic group or another.

Finally, since this was a retrospective study using a convenience sample and diagnoses limited to patients with schizophrenia, these findings might be meaningful only to these groups of patients. Although the study involved multiple years, the two groups were often unequal in size and had some extremes in some data sets (such as the LOS crossing multiple years). Thus, these external threats to validity may prohibit the generalization of the findings of this study.

Conclusions

Noncompliance is high across all areas of medicine (Pomerance, 2004) not just for the psychiatric patient. However, it is an accepted fact that the disease process of schizophrenia is likely to produce recurrent psychotic episodes regardless of the patient's compliance (Geller, 1986; Lacro et al. 2002; Prince, 2004). The findings for the 8 years examined determined that both the number of patients and return rate (recidivism) for the years following the initial intervention was considerably lower for patients who had the educational intervention and the patients who had the educational intervention had longer intervals between admissions. However, due to uncontrolled-for confounding variables, the average LOS for the intervention group for 4 of the 8 years was greater than the control group.

Knowledge is power and education is the key to the knowledge that gives the patient some control over their illness. It is a cost-effective measure that improves outcomes, adherence to the treatment plan (Shaffer & Lopes, 2003), and

disrupts the “revolving door” phenomenon among the mentally ill (Haywood et al. 1995). Presenting patients the opportunity to make choices in their treatment, enables them to reach their full potential in spite of their mental illness. Therefore, the challenge for healthcare providers is to empower the patient to be more self-reliant in the quest for their individual recovery.

Recommendations

The findings of this study demonstrate the value of patient education to assist patients with improvement in self-management and compliance. Patients may elect to not participate in formal group educational activities for one reason or another. The following steps could be taken to assure that the patients more consistently participate:

1. Use educational modules that are structured and focused toward skills training for the core groups.
2. Allow patients to select educational groups/activities of interest from a menu of available educational opportunities with core educational groups such as medication management and symptom management being mandatory for patients.
3. Privilege levels for patients while hospitalized could be tied to their participation in a certain number of psychosocial educational groups.
4. Direct care staff must make patient education a priority by making a positive environment for educational opportunities and encouraging patient participation.
5. Staff must be creative and make each contact with patients an

opportunity for presenting educational materials/concepts.

Additionally, the area of patient education offers many opportunities for future research that the present study began. Future studies might be more conclusive with findings that better able to be generalized if:

1. Readmissions to various hospitals and life changes that impact readmission (i.e.: having no further psychotic breaks, getting insurance, death, etc.) were more tightly controlled.
2. The design included control for differences in both clinician practices and shospital policies and procedures.
3. A prospective study was designed using similar groups with better-controlled variables and consistent interventions for all patients.
4. Factors that influence patients to participate in patient education were explored (i.e.: attitude toward authority, receptivity toward learning, desire for discharge, etc.).

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APPENDICES

Appendix A

Permission from Facility

MOCCASIN BEND MENTAL HEALTH INSTITUTE

PHONE (423) 265-2271

100 MOCCASIN BEND ROAD
CHATTANOOGA, TENNESSEE 37405

FAX (423) 785-3333
TDD (423) 785-3467

Memorandum

To: Donald Gold, Jr., M.D., Chairman, Executive Committee Medical Staff

From: Patricia Alverson, [illegible], LCSW, Ass't. Supt., Program Services

Date: July 16, 1999

Re: Research Proposal

On July 15, 1999, the Research Committee comprised of John Lowe, M.D., Clare Emery, M.S., and myself met to review the Dissertation Proposal of Ms. Charlynne Parson, M.S.N., R.N., Director, Nursing Services. The title of the study is "The Effects of Patient Education On The Recidivism Rate and Length of Stay of Clients With Schizophrenia." Our review led us to conclude that

1. the study has both value and merit
2. the confidentiality of rights of patients will not be compromised.

It is therefore our recommendation that Ms. Parson be permitted, indeed encouraged, to use the Institute's resources for her research project.

PA/bjp

xc: Russell K. Vatter, Superintendent

Charlynne Parson, M.S.N., R.N.

1

"An Accredited Psychiatric Facility"

Appendix B

Form A

Form A - College of Education

(enumerate research methods)	III. Methods or Procedures: Patients with the target diagnoses admitted to the psychiatric facility during the study period of July 1, 1997 to June 30, 1998, will be divided into two groups: those who were assigned and participated in patient education classes and those assigned to patient education classes who did not participate. The two groups of those who participated and those who did not will be matched by age, sex, diagnosis, and global ability to function GAF) which is a measure of the patient's ability to function. These two groups will then be compared with respect to readmission rates and readmission length of stay during the next year, the period of July 1,1998 to June 30, 1999.
Potential Risk to Subjects	Potential Risks: This research is retrospective in nature and will pose no risk to subjects because it is all based on previously gathered data in secured hospital records. No new data will be gathered.
Protective measures	Anonymity: Data will be obtained about patients from compiled statistics from the Institute's Medical Records Department and Department of Standards and Compliance. These statistical data will be coded to assure patient anonymity. They include demographic information such as patient age, sex, diagnosis, and global ability to function. Otherwise, the data received by the researcher will have no identifying information about the patients.
Benefits vs Risks (if no risks explain why):	The results of this research may benefit both future patients and the facility to see if patient education activities make any difference in either the recidivism rate or length of stay should the patient return to the hospital. Since attendance in the patient education program is voluntary, the findings, if they find a difference, may change the presentation of the program to future patients.
Voluntary participation:	The study is a review of retrospective data in which the patient's anonymity is assured.

Form A - College of Education

Informed consent:	On admission, patients sign for release of information to the hospital. Data collected by the hospital become a matter public record after they are aggregated into statistical form for quality improvement activities.
How to contact researchers:	Does not apply to patients in this study since the study is from compiled data. The only researcher is student, Charlynne Parson.
Protective measures (how subjects may withdraw or not participate):	Does not apply since the researcher does not have access to patient names or other identifying information, only aggregated data supplied by Medical Records and Standards and Compliance Departments.
How confidentiality/data will be maintained:	Protective measures/confidentiality assurances will include: 1) receipt of compiled statistics without identifying information about the individual patient from the Institute's Medical Records Department and Department of Standards and Compliance, 2) storing aggregated, analyzed data in the researcher's personal computer at home which is available only to this researcher, and 3) reporting only variations within and between the various groups statistically.
(category for exempt research per 45 CFR 46):	IV. #4 - Research involving the collection or study of existing data, documents, or records, if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.
Agree to Belmont Report:	Certification: The research described herein is in compliance with 45 CFR 46.101(b) and presents subjects with no more that minimal risk as defined by applicable regulations. Signature of the researcher indicate a willingness to uphold the standards of the Belmont Report.

Form A - College of Education

Original Signatures:

Principal investigator _____ 2-14-00
Signature Date

Advisor Mary Jane Connelly

Unit Leader _____

Chair, Department Review Committee _____

Chair, College Review _____

Appendix C

Global Assessment of Functioning

Consider psychological, social, and occupational functioning on a hypothetical continuum of mental health-illness. Do not include impairment in functioning due to physical (or environmental) limitations.

Code	(Note: Use intermediate codes when appropriate, e.g., 45, 68, 72)
100	**Superior functioning in a wide range of activities, life's problems never seem to get out of**
91	**hand, is sought out by others because of his or her many positive qualities. No symptoms.**
90	**Absent or minimal symptoms** (e.g., mild anxiety before an exam), **good functioning in all**
|	**areas, interested and involved in a wide range of activities, socially effective, generally**
81	**satisfied with life, no more than everyday problems or concerns** (e.g., an occasional argument family members).
80	**If symptoms are present, they are transient and expectable reactions to psychosocial**
|	**|stressors** (e.g., difficulty concentrating after family argument); **no more than slight**
71	**impairment in social, occupational, or school functioning** (e.g., temporarily falling behind in school work).
70	**Some mild symptoms** (e.g., depressed mood and mild insomnia) **OR some difficulty in social,**
|	**occupational, or school functioning** (e.g., occasional truancy, or theft within the household),
61	**but generally functioning pretty well, has some meaningful interpersonal relationships.**
60	**Moderate symptoms** (e.g., flat affect and circumstantial speech, occasional panic attacks)
|	**OR moderate difficulty in social, occupational, or school functioning** (e.g., few friends,
51	conflicts with peers or co-workers).
50	**Serious symptoms** (e.g., suicidal ideation, severe obessional rituals, frequent shoplifting)
|	**Or any serious impairment in social, occupational, or school functioning** e.g., no
41	friends, unable to keep a job).
40	**some impairment in reality testing or communication** (e.g., speech is at times illogical,
|	obscure, or irrelevant**) OR major impairment in several areas, such as work or school,**
31	**family relations, judgment, thinking, or mood** (e.g., depressed man avoids friends, neglects family, and is unable to work; child frequently beats up younger children, is defiant at home, and is failing in school).
30	**Behavior is considerably influenced by delusions or hallucinations OR serious impairment**
|	**in communication or judgment** (e.g., sometimes incoherent, acts grossly inappropriately,
21	suicidal preoccupation) **OR inability to function in almost all areas** (e.g., stays in bed all day; no job, home, or friends).
20	**Some danger of hurting self or others** (e.g., suicide attempts without clear expectation of
|	of death; frequently violent; manic excitement) **OR occasionally fails to maintain minimal**
11	**personal hygiene** (e.g., smears feces) **OR gross impairment in communication** (e.g., largely incoherent or mute).
10	**Persistent danger of severely hurting self or others** (e.g., recurrent violence) **OR persistent**
|	**inability to maintain minimal personal hygiene OR serious suicidal act with clear**
1	**expectation of death.**
0	Inadequate information

The rating of overall psychological functioning on a scale of 0-100 was operationalized by Luborsky in the Health-Sickness Rating Scale (Luborsky L.: "Clinicians' Judgments of Mental Health." Archives of General Psychiatry 7: 407-417, 1962). Spitzer and colleagues developed a revision of the Health-Sickness Rating Scale called the Global Assessment Scale (GAS) (Ebducitt J. spitzer RL, Fleiss JL, Cohen J: "The Global Assessment Scale: A Procedure for Measuring Overall Severity of Psychiatric Disturbance." Archives of General Psychiatry 33: 766-771, 1976). A modified version of the GAS was included in DSM-III-R as the Global Assessment of Functioning (GAF) Scale.

American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders.* **Fourth Edition, Text Revision. Washington, D.C.: American Psychiatric Association.**

Appendix D

Psychosocial Education Checksheet

PATIENT AND FAMILY EDUCATION
Teaching Outline and Documentation Record

SYMPTOMS MANAGEMENT

LEARNER (*patient, family, significant other*): _____

LEARNING NEEDS (*Method Codes: V = Videotape/filmstrip; T= One-to-one; D = Demonstration; H = Handout; G = Group*)

	Method	*Date Attended*	*Instructor's Signature*
1. How to identify warning signs of relapse.	_____	_____	_____
2. How to manage warning signs.	_____	_____	_____
3. How to cope with persistent symptoms.	_____	_____	_____
4. The importance of avoiding alcohol and street drugs.	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____

OBJECTIVES

	Date Achieved
1. Can name personal warning signs of relapse.	_____
2. Can explain methods for dealing with personal warning signs and tell the difference between them and side effects of medication.	_____
3. Can name methods of dealing with persistent symptoms (voices, paranoia, panic, depression, etc.).	_____
4. Can explain dangers of mixing alcohol and street drugs with prescription medication.	_____
5. _____	_____
6. _____	_____

Date/Time:	PROGRESS NOTES	Signature:

EVALUATION

TEACHER:

Signature: Date:

LEARNER:

Signature: **Date:**

Original - Chart: 1 Copy - Program: 1 Copy - Patient/Family MH–4780A

Vita

Mary Charlynne Parson was born in Chattanooga, Tennessee, on June 19,1943. She graduated from Chattanooga High School in 1961, and immediately entered the Baroness Erlanger Hospital School of Nursing to fulfill her lifelong dream of being a nurse. She received her diploma to practice as a Registered Nurse in1964, and began her career as a Pediatric nurse at T.C. Thompson Children's Hospital in Chattanooga. She served the organization in many capacities including Emergency Room nurse, Shift Supervisor, and Operating Room Supervisor before moving into nursing education to teach Pediatric Nursing with the Baroness Erlanger Hospital School of Nursing until the school closed in 1989.

In 1979, Charlynne was awarded a Bachelor of Science Degree in Psychology from the University of Tennessee, Chattanooga. She was also awarded a Bachelor of Science in Nursing Degree from UTC in 1987. In 1990, she received a Masters in Science in Nursing, Administration from Andrews University, Berrien Springs, Michigan. She entered the doctoral program in education in the UTC/UTK program through the University of Tennessee, Knoxville and received her EdD in May 2008.

Charlynne has continued to be a strong advocate for Nursing by being actively involved in several Nursing organizations. She has worked for the State of Tennessee since 1989, and as the Nurse Executive for Moccasin Bend Mental Health since 1992.